

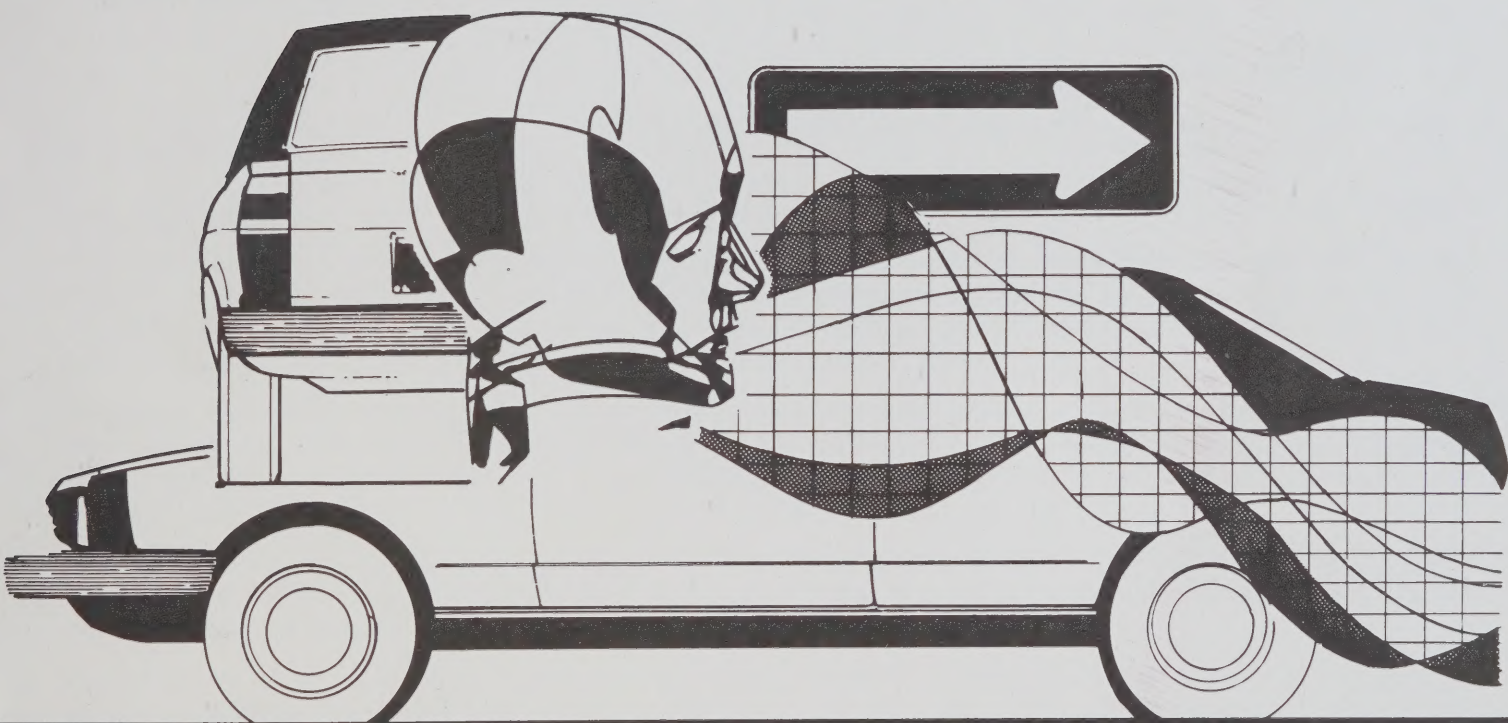
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**ALCOHOL USE AMONG DRIVERS AND
PEDESTRIANS FATALLY INJURED IN MOTOR
VEHICLE ACCIDENTS:**

CANADA, 1995




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Road Safety

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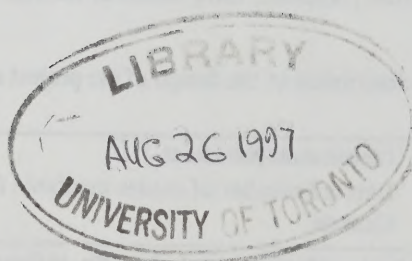
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17. Abstract <p>This report describes the conduct of a project to compile data on alcohol use by persons fatally injured in motor vehicle accidents occurring on or off public highways in Canada. Data are obtained from two sources: (1) police-reported information on the characteristics of the victim and details of the fatal motor vehicle accident; and (2) coroners' and medical examiners' files for objective, toxicological data from body fluid samples (mostly blood) on alcohol use among victims.</p> <p>The primary focus of the report is on alcohol in fatally injured drivers because this group of road users is of greatest interest to traffic safety officials, and the rate of testing for alcohol is consistently higher among drivers than other groups of road users. A secondary focus is on alcohol in fatally injured pedestrians because walking on or by highways after drinking is extremely risky and the testing for alcohol especially among those over 16 years of age is reasonably high.</p> <p>The report contains (1) general descriptive information on the frequency and quantity of alcohol found in drivers and pedestrians fatally injured in motor vehicle collisions in Canada during 1995 and (2) trends in alcohol detected among fatally injured operators of automobiles, motorcycles, trucks, vans, and tractor-trailers and among fatally injured pedestrians.</p> <p>As well, data on alcohol use by fatally injured drivers are presented separately for each province and territory. General descriptive information on the incidence of alcohol among fatally injured drivers are first presented; then, trends in alcohol involvement among fatally injured automobile drivers are examined.</p> <p>An historical overview of the Fatality Database Project and a more detailed description of the design of the project are provided in an Appendix.</p>							
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ABSTRACT

Alcohol Use Among Drivers and Pedestrians Fatally Injured In Motor Vehicle Accidents:

Canada, 1995

D.R. Mayhew, S. W. Brown and H.M. Simpson

**The Traffic Injury Research Foundation of Canada
Ottawa, Ontario**

June 1997

Alcohol Use Among Drivers and
Pedestrians Fatally Injured
in Motor Vehicle Accidents

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An historical overview of the Fatality Database Project and a more detailed description of the design of the project are provided in an Appendix.

CONTENTS

ACKNOWLEDGEMENTS	v
1.0 THE FATALITY DATABASE PROJECT:	1
1.1 Overview and Purpose	1
1.2 Scope of Report	1
2.0 DESCRIPTION OF THE FATALITY DATABASE	3
2.1 Overview	3
2.2 Number of Victims: 1982-1995	3
2.3 Type of Victim	4
2.4 Testing Rates for Alcohol	5
3.0 CANADA	13
A. Alcohol Use Among Fatally Injured Drivers	13
3.1 General Findings	13
3.1.1 Age Differences	14
3.1.2 Gender Differences	15
3.1.3 Vehicle Differences	16
3.1.4 Collision Differences	17
3.1.5 Jurisdictional Differences	18
3.2 Trends in Alcohol Use: 1987-1995	19
3.2.1 Alcohol Among All Drivers	20
3.2.2 Alcohol Use Among Automobile Drivers	21
3.2.3 Alcohol Use Among Drivers of Trucks/Vans	21
3.2.4 Alcohol Use Among Motorcycle Riders	22
3.2.5 Alcohol Use Among Tractor-Trailer Drivers	22
B. Alcohol Use Among Fatally Injured Pedestrians	22
3.3 General Findings	22

3.3.1 Age Differences	23
3.3.2 Gender Differences	24
3.3.3 Jurisdictional Differences	25
3.4 Trends in Alcohol Use: 1987-1995	26
INTRODUCTION TO SECTIONS 4.0 TO 15.0	53
4.0 BRITISH COLUMBIA	55
5.0 ALBERTA	67
6.0 SASKATCHEWAN	79
7.0 MANITOBA	91
8.0 ONTARIO	103
9.0 QUEBEC	115
10.0 NEW BRUNSWICK	127
11.0 PRINCE EDWARD ISLAND	139
12.0 NOVA SCOTIA	147
13.0 NEWFOUNDLAND AND LABRADOR	159
14.0 NORTHWEST TERRITORIES	165
15.0 YUKON TERRITORY	167
APPENDIX A: THE FATALITY DATABASE PROJECT -- OVERVIEW .	169
REFERENCES	179

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1.0 THE FATALITY DATABASE PROJECT

1.1 OVERVIEW AND PURPOSE

The purpose of the *Fatality Database* is to provide a comprehensive source of objective data on alcohol use among persons fatally injured in motor vehicle accidents occurring on or off public highways in Canada. It has proven to be a useful source of descriptive data on the magnitude and characteristics of the alcohol-(fatal) crash problem, a means for monitoring changes/trends in the problem as well as a valuable tool for research on alcohol-impaired driving.

Developed and maintained by the Traffic Injury Research Foundation of Canada (TIRF), the database contains basic information on persons fatally injured in motor vehicle accidents. This includes: characteristics of drivers, passengers, and pedestrians (e.g., age, sex); details of the crash (e.g., type of collision, date, time); and type of vehicle(s) involved. Objective information on the presence and quantity of alcohol (concentrations detected by chemical tests on blood, urine or other body fluids) as well as information needed to **interpret** the results of chemical tests -- such as time of death after crash -- are key features of the database.

The *Fatality Database* is historically intact from 1973 to 1995, inclusive, for seven provinces; since 1987 data have been assembled from all provinces and territories in Canada.

1.2 SCOPE OF REPORT

In the following sections of this report, the conduct and most recent findings of the *Fatality Database* Project are described.

Section 2.0, *A Description of The Fatality Database*, outlines how the data on traffic fatalities were compiled; numbers of cases included in the database are reported; and, rates of testing for alcohol across Canada are indicated.

Section 3.0 provides descriptive data on the incidence of alcohol among fatally injured drivers and pedestrians in Canada during 1995. Also examined in this section are *trends* in alcohol use among fatally injured operators of automobiles, trucks/vans, motorcycles, and tractor-trailers and trends in alcohol use among pedestrian fatalities.

In subsequent sections (4.0 through 15.0), data on alcohol use among fatally injured drivers obtained from each province and territory are summarized. General descriptive information on the incidence of alcohol use among fatally injured drivers are first presented; then, trends in alcohol involvement among fatally injured drivers are examined.

For readers not familiar with the *Fatality Database*, Appendix A provides an overview of this long-standing project and describes the design of the project in greater detail.

2.0 DESCRIPTION OF THE FATALITY DATABASE

2.1 OVERVIEW

The *Fatality Database* consists of case files (records) of persons fatally injured in traffic crashes. Two sources of information provide data for most case files: (1) police-reported data on fatal motor vehicle accidents and (2) files in the offices of coroners and medical examiners. In general, *both* sources must be accessed to obtain complete data on victims, crashes, vehicles, and toxicology. Police-reported data include characteristics of the victim (age and sex, position in the vehicle -- driver, passenger) and details of the crash (type of vehicle(s) and collision, time, date). Objective, toxicological data on alcohol use among victims are obtained from files in coroners' and medical examiners' offices. The alcohol data are the results of chemical tests, performed on body fluid samples (typically blood), by recognized forensic laboratories or other facilities. Uniform and rigorous testing procedures in each jurisdiction ensure reliable and accurate data on the prior use of alcohol by victims of motor vehicle accidents. As will be discussed in a subsequent section, there is a high rate of testing for alcohol in most jurisdictions, especially among drivers fatally injured in motor vehicle accidents.

Details of the method used to access and collect relevant police-reported and coroner/medical examiner data on persons fatally injured in motor vehicle accidents as well as the approach used to create case files for the *Fatality Database* are provided in Appendix A.

2.2 NUMBER OF VICTIMS: 1982-1995

Similar to previous years, a motor vehicle fatality is broadly defined in the data capture procedures and in this report as follows: **any person dying within 12 months as a result of injuries sustained in a collision involving a motor vehicle.** Since this definition of a motor vehicle fatality differs somewhat from those of some coroners/medical examiners and some provincial transportation agencies, the number of fatalities included in the *Fatality Database* may also differ slightly from those reported

by official sources (see Appendix A for a description of how these agencies define motor vehicle fatalities).

Table 2-1 provides a comparison of the number of traffic fatalities reported by transportation agencies with the number of motor vehicle fatalities included in the *Fatality Database*, for the years 1982 through 1995. Over this fourteen-year period, for most jurisdictions, the number of case files in the database is somewhat higher than that officially reported by transportation agencies. This is further illustrated in Figure 2-1, which presents the comparative data for each jurisdiction in 1995. As can be seen, in all jurisdictions the number of motor vehicle fatalities contained in the database is larger than or the same as that officially reported by transportation agencies. The principal reason that the TIRF database has more cases than the transportation agencies is that it typically includes victims of motor vehicle crashes that occurred off-road (e.g. ATV, snowmobile) and on private property (farm tractors, industrial motor vehicles) -- cases which are not routinely contained in the files of transportation agencies. For Prince Edward Island, Newfoundland, the Yukon Territory, and the Northwest Territories however, collection of coroner's data was limited to victims identified through police reports and, therefore, the numbers contained in the database are similar to those compiled by the transportation authorities.

2.3 TYPE OF VICTIM

The *Fatality Database* contains information on three types of victims involved in fatal motor vehicle accidents -- drivers/riders, passengers, and pedestrians. Drivers include operators of all types of vehicles both on road -- automobiles, trucks/vans, motorcycles, bicycles -- and off-road -- all terrain vehicles, dirtbikes, snowmobiles, and farm tractors. Similarly, passengers include other vehicle occupants as well as persons riding on vehicles (motorcycles, bicycles, ATVs) but not driving or operating them. And, finally, pedestrians are those individuals travelling on foot who were struck and fatally injured by a motor vehicle.

The number of drivers, passengers and pedestrians killed in 1995 is shown in Table 2-2, separately for each jurisdiction. Also shown for each jurisdiction is the proportion of all deaths accounted for by the various classes of road users. Canada-wide totals are given at the bottom of the table. For example, in Alberta, of the 434 people killed in motor vehicle crashes in 1995, 55.3% were drivers, 31.1% were passengers and 12.4% were pedestrians -- in 1.2% of the cases, the victim-type was not known (e.g., if all the occupants of a vehicle were ejected and killed in a single-vehicle crash, it cannot always be determined who was the driver). In most jurisdictions, the majority of fatalities were drivers -- ranging from 36% in the Yukon to 88% in Prince Edward Island. Between 12% (Prince Edward Island) and 64% (Yukon) of victims were passengers; and, between 0% (Prince Edward Island and Yukon) and 20% were pedestrians (Northwest Territories).

It should also be mentioned that various percentages of fatalities listed in Table 2-2 may differ from official provincial statistics. This is primarily due to differences in reporting conventions. For example, many provinces report bicyclists, motorcycle operators and passengers separately from *driver* and *passenger* categories. To arrive at similar distributions using the Fatality Database, the variable containing information on the *type of vehicle* occupied (or ridden) by the victim must be used.

In Canada during 1995, as shown by the totals at the bottom of the table, 3,684 persons were fatally injured in motor vehicle collisions: about 6 out of every 10 fatalities were operators of motor vehicles (59%); about 27.5% were passengers; and 13.4% were pedestrians. These national data are also shown graphically in Figure 2-2. From this perspective, vehicle occupants, particularly drivers, remain the major road-user group of concern for traffic safety.

2.4 TESTING RATES FOR ALCOHOL

The inclusion of objective data on the presence of alcohol among traffic victims represents the most important feature of the *Fatality Database*. The value of this

information depends greatly on the frequency with which tests for the presence of alcohol are performed on the body fluids of victims. Table 2-3 contains information during 1995; Canada-wide totals are shown at the bottom of the table. As can be seen, fatally injured drivers were tested most (82.2%), followed by pedestrians (61.5%) and passengers (35.3%). The testing rate increases slightly for fatally injured pedestrians and passengers if victims under the age of 16, who are less often tested, are excluded (66.7% and 39.8%, respectively).

It is evident from the information provided in the table that the rate of testing for alcohol varies not only as a function of the type of victim but by jurisdiction as well. This is illustrated graphically in Figure 2-3, which shows the rate of testing for alcohol among fatally injured drivers in the various jurisdictions. Several jurisdictions test over 80% of the driver fatalities and two -- Alberta and Saskatchewan -- test almost all driver fatalities. However, in some jurisdictions, there is clearly room for improvement -- the testing rates need to be increased to enhance the reliability and utility of the information.

Figure 2-4 shows the rate of testing for alcohol among fatally injured pedestrians in the various jurisdictions. As can be seen, there is considerable variation in the rate of testing -- from 0% in the Northwest Territories to 83% in Newfoundland. Testing rates, however, increase considerably if the analyses focuses on fatally injured pedestrians dying less than six hours after the crash. Testing rates are not shown in this figure for Prince Edward Island and the Yukon because there were no fatally injured pedestrians in 1995 in these jurisdictions.

Table 2-1

Number of Fatalities Reported by Provincial Transportation Agencies and Included in the Fatality Database

PROVINCE		YEAR													
		1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
British Columbia	Province	601	607	525	483	599	622	615	587	646	537	470	512	534	493
	Fatality Database	625	607	539	502	616	650	650	638	704	584	500	562	592	560
Alberta	Province	502	428	470	533	523	510	464	487	409	421	368	383	395	403
	Fatality Database	545	447	497	554	541	548	526	532	442	443	405	422	432	434
Saskatchewan	Province	240	235	221	214	245	236	200	192	154	170	143	153	151	156
	Fatality Database	252	251	241	243	255	260	226	217	174	186	153	173	172	179
Manitoba	Province	151	133	127	133	168	165	141	155	108	106	118	134	119	129
	Fatality Database	167	146	149	141	187	188	156	173	141	148	140	144	131	147
Ontario	Province	1138	1204	1132	1191	1105	1229	1236	1286	1120	1091	1080	1186	1033	1068
	Fatality Database	1292	1335	1301	1316	1256	1401	1397	1491	1320	1275	1290	1314	1165	1164
Quebec	Province	-	-	-	-	-	1116	1090	1139	1080	1000	966	972	824	882
	Fatality Database	-	-	-	-	-	1165	1173	1199	1108	1024	959	947	837	900
New Brunswick	Province	204	122	162	142	130	151	164	154	155	118	131	139	79	113
	Fatality Database	218	132	175	152	146	161	192	162	161	122	144	160	87	120
Nova Scotia	Province	-	-	-	155	134	161	146	120	150	115	113	100	91	107
	Fatality Database	-	-	-	174	142	166	155	127	153	120	117	103	95	111
P.E.I.	Province	16	31	31	37	29	18	21	18	29	31	12	20	18	16
	Fatality Database	16	31	31	37	30	18	21	18	30	32	12	20	19	17
Newfoundland	Province	-	-	-	-	56	59	58	89	63	51	45	45	37	33
	Fatality Database	-	-	-	-	67	59	57	87	65	51	45	45	37	33
Yukon Territory	Province	-	-	-	-	-	11	12	8	8	10	15	8	10	14
	Fatality Database	-	-	-	-	-	11	12	10	9	10	15	9	11	14
Northwest Territories	Province	-	-	-	-	-	8	4	11	8	5	11	5	3	5
	Fatality Database	-	-	-	-	-	8	4	12	11	6	12	10	3	5

Figure 2-1
Number of Fatalities Reported by
Official Sources and in Database: 1995

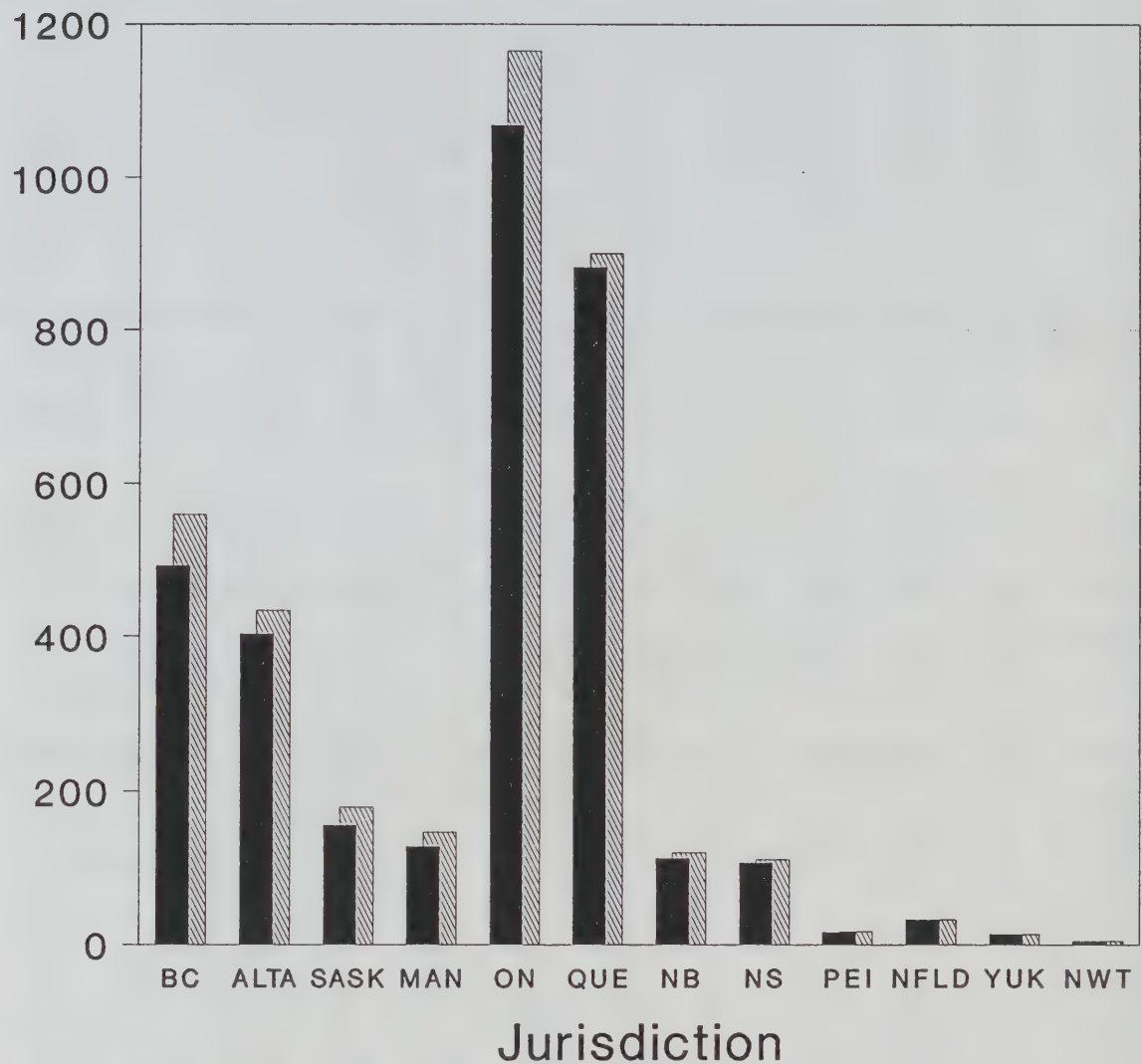


Table 2-2

Number of Motor Vehicle Fatalities in Canada, 1995:
Type of Victim

<u>PROVINCE</u>	<u>DRIVER (%)</u>	<u>PASSENGER(%)</u>	<u>PEDESTRIAN(%)</u>	<u>UNKNOWN(%)</u>	<u>TOTAL(%)</u>
British Columbia	310 (55.4)	181 (32.3)	69 (12.3)	0 (0.0)	560 (100)
Alberta	240 (55.3)	135 (31.1)	54 (12.4)	5 (1.2)	434 (100)
Saskatchewan	99 (55.3)	57 (31.8)	23 (12.8)	0 (0.0)	179 (100)
Manitoba	83 (56.5)	46 (31.3)	18 (12.2)	0 (0.0)	147 (100)
Ontario	716 (61.5)	291 (25.0)	157 (13.5)	0 (0.0)	1164 (100)
Quebec	540 (60.0)	225 (25.0)	135 (15.0)	0 (0.0)	900 (100)
New Brunswick	77 (64.2)	30 (25.0)	13 (10.8)	0 (0.0)	120 (100)
Nova Scotia	69 (62.2)	25 (22.5)	17 (15.3)	0 (0.0)	111 (100)
Prince Edward Island	15 (88.2)	2 (11.8)	0 (0.0)	0 (0.0)	17 (100)
Newfoundland	16 (48.5)	11 (33.3)	6 (18.2)	0 (0.0)	33 (100)
Yukon Territory	5 (35.7)	9 (64.3)	0 (0.0)	0 (0.0)	14 (100)
Northwest Territories	2 (40.0)	2 (40.0)	1 (20.0)	0 (0.0)	5 (100)
TOTAL	2,172 (59.0)	1,014 (27.5)	493 (13.4)	5 (0.1)	3,684 (100)

Figure 2-2
Motor Vehicle Fatalities in Canada:
Type of Victim, 1995

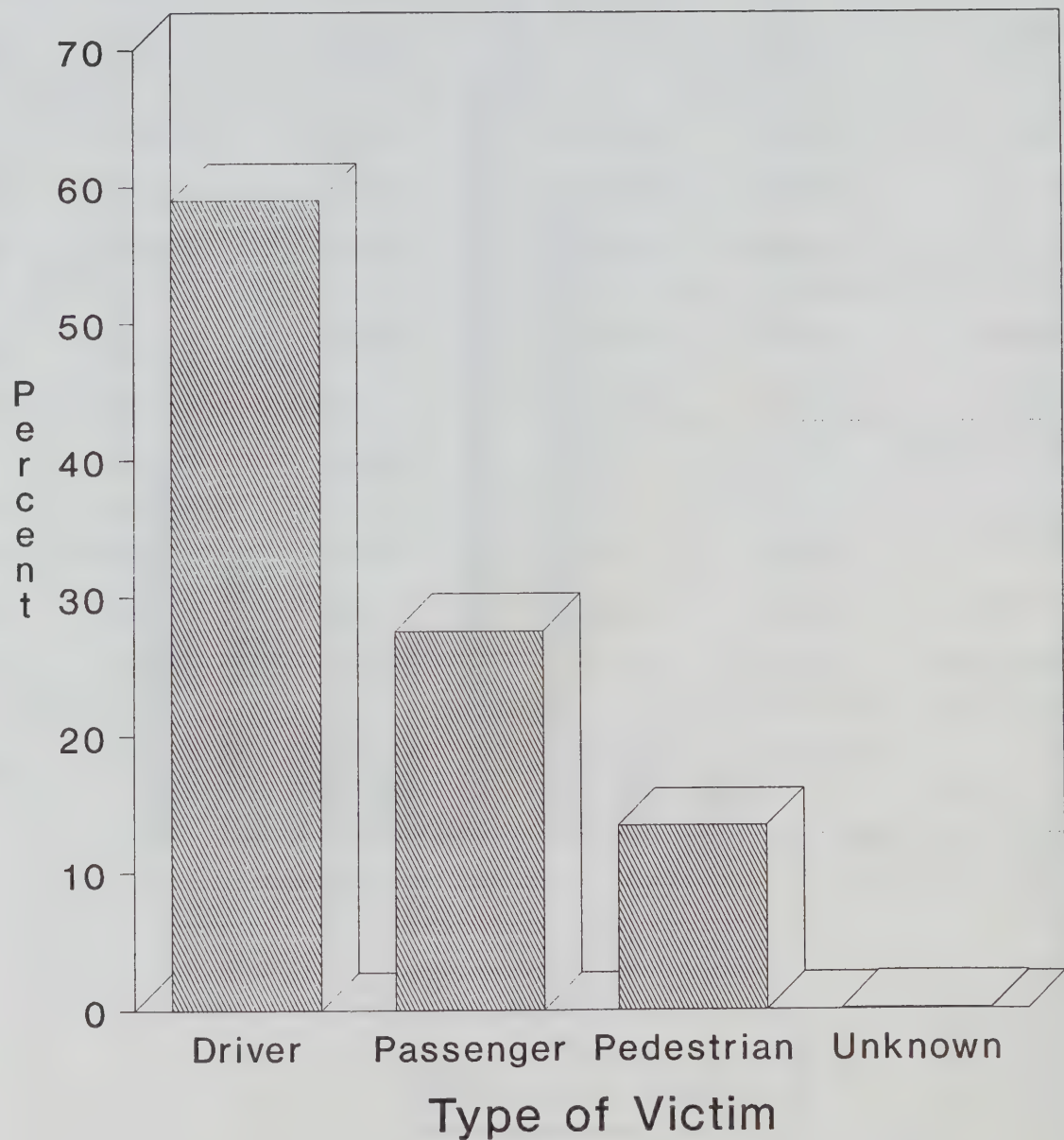


Table 2-3

Blood Alcohol Tests* by Type of Victim: 1995

<u>PROVINCE</u>	<u>DRIVER</u>	<u>PASSENGER</u>	<u>PEDESTRIAN</u>	<u>TOTAL</u>
British Columbia	267 (86.1)	91 (50.3)	46 (66.7)	404 (72.1)
Alberta	227 (94.6)	78 (57.8)	43 (79.6)	348 (81.1)
Saskatchewan	95 (96.0)	32 (56.1)	14 (60.9)	141 (78.8)
Manitoba	64 (77.1)	19 (41.3)	12 (66.7)	95 (64.6)
Ontario	583 (81.4)	51 (17.5)	90 (57.3)	724 (62.2)
Quebec	405 (75.0)	54 (24.0)	74 (54.8)	533 (59.2)
New Brunswick	61 (79.2)	10 (33.3)	7 (53.8)	78 (65.0)
Nova Scotia	53 (76.8)	11 (44.0)	12 (70.6)	76 (68.5)
Prince Edward Island	11 (73.3)	2 (100.0)	0 (0.0)	13 (76.5)
Newfoundland	13 (81.3)	7 (63.6)	5 (83.3)	25 (75.8)
Yukon Territory	5 (100.0)	1 (11.1)	0 (0.0)	6 (42.9)
Northwest Territories	2 (100.0)	2 (100.0)	0 (0.0)	4 (80.0)
TOTAL	1,785 (82.2)	358 (35.3)	303 (61.5)	2,447 (66.5)

* 75 victims had no blood sample taken but were tested for alcohol using urine and vitreous humour samples. These test results were converted to equivalent blood alcohol concentrations.

Figure 2-3
Blood Alcohol Tests Among Fatally
Injured Drivers in Canada: 1995

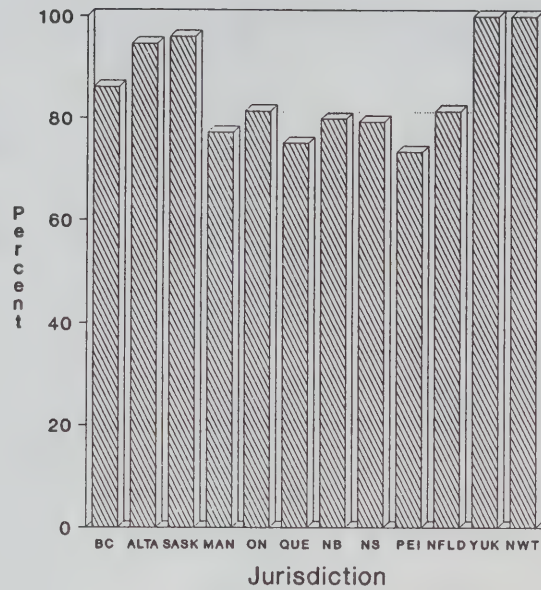
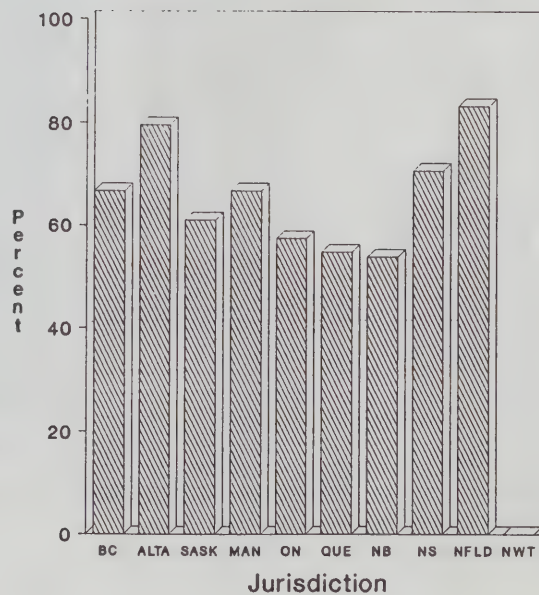


Figure 2-4
Blood Alcohol Tests Among Fatally
Injured Pedestrians in Canada: 1995



3.0 CANADA

A. Alcohol Use Among Fatally Injured Drivers

This section of the report contains (1) general descriptive information on the frequency and quantity of alcohol found in drivers fatally injured in motor vehicle collisions in Canada during 1995 and (2) trends in alcohol use among driver fatalities over the past nine years.

National data on alcohol use among drivers fatally injured in motor vehicle crashes are presented in section 3.1 below. The data presented there include in most cases information on *drivers of the principal types of vehicles* (e.g., automobiles, trucks, vans, motorcycles, and tractor-trailers). Thus the category "driver" in this section of the report generally excludes bicycles, snowmobiles, farm tractors and, other non-highway vehicles (e.g., ATVs). However, section 3.1.3 on "vehicle differences" provides some information on the incidence of alcohol among operators of recreational vehicles -- i.e., snowmobiles, bicycles and off-road vehicles.

3.1 GENERAL FINDINGS

During 1995, as shown by the totals at the bottom of Table 3-1, there were 1,924 drivers fatally injured in traffic crashes in Canada. The overall rate of testing for alcohol in drivers killed in Canada in 1995 was 84%, similar to the rate in 1994 (84.9%).

As the totals at the bottom of Table 3-1 indicate, among tested drivers in Canada:

- o 56.6% showed no evidence of alcohol;
- o 5.2% had BACs below 50 mg%;
- o 2.8% had BACs from 50 to 80 mg%;
- o 8.8% had BACs from 81 to 150 mg%; and,
- o 26.6% had BACs over 150 mg%.

Thus 43.4% of fatally injured drivers in Canada had been drinking and most of these had illegal BACs. Indeed, the average BAC among fatally injured drinking drivers was 169 mg%, more than twice the legal statutory limit of over 80 mg%.

3.1.1 Age Differences. Table 3-1 presents data on alcohol use among fatally injured drivers of various ages in 1995. For each age group the following information is given in the table: the total number of drivers killed; the number and percent who were tested for alcohol; and the results of the alcohol tests -- this includes the number and percent of those tested in each of *five* categories of blood alcohol concentration.

Because there is a considerable amount of information in the table, various elements are considered in more detail below.

- o Rates of testing for alcohol.* Rates of testing (the third column in Table 3-1) clearly vary as a function of the age of the victim. This is depicted graphically in Figure 3-1. Rates of testing for alcohol ranged from 71% to 89%, with a national average of 84%.

- o Incidence of alcohol.* As described above, Table 3-1 provides information on the presence of alcohol in fatally injured drivers of various ages. These data are summarized in Figure 3-2. The number of age groups and the BAC categories have been compressed somewhat to facilitate presentation. For each age group, the percent of drivers who were sober (zero BAC) is shown by the lower, solid portion of the bar; the percent who were positive for alcohol but whose BAC was below the legal limit (80 mg%) is shown by the striped section in the middle, and the percent with BACs over the legal limit is shown by the upper, stippled part of the bar.

As can be seen, alcohol was detected less frequently among drivers over the age of 55. Alcohol was most frequently detected among drivers age 20-25 and those age 26-35.

Figure 3-3 presents the information in a slightly different manner. It shows the percent of all drinking drivers accounted for by each age group. The bar on the left shows the

proportion of all fatally injured drivers with BACs under the legal limit accounted for by each age group. On the right is shown the proportion of "impaired drivers" accounted for by each age group. Drivers in the 20-25 age group account for 26% of the fatally injured drivers with BACs below 80 mg%. Almost one third of drinking-drivers (32%) with BACs over 80 mg% are in the 26-35 age group.

3.1.2 Gender Differences. Data on alcohol use among male and female driver fatalities are shown in Table 3-2. The table contains the same information as described above for Table 3-1 (i.e., number of drivers; number and percent tested for alcohol; and the results of those tests for 5 BAC categories). In 1995, males accounted for 80% of the drivers killed in Canada (1,537/1,924).

o Rates of testing for alcohol. It is interesting to note that the frequency of testing for alcohol is a function of the gender of the victim. Males were somewhat more likely to be tested than females (testing rates of 85% and 81%, respectively).

o Incidence of alcohol. Figure 3-4 presents the findings for alcohol use among fatally injured male and female drivers. The pie chart shows the proportion of drivers who were sober (i.e., 0 BAC) and positive for alcohol (+ BAC). The bar to the right of the pie chart shows the distribution of alcohol levels found among those who were drinking; the percent who had alcohol levels above and below the legal limit. Percentages are given inside the figures; the absolute number of cases is shown adjacent to the figure.

Among fatally injured male drivers, almost half (47%) had been drinking. In contrast, the lower portion of the figure shows that the majority of female drivers were sober (70% showed no evidence of alcohol). Not only are fatally injured female drivers less likely to be positive for alcohol, it is important to note that there are considerably fewer of them in the first place. For example, there were 608 fatally injured male drinking drivers in 1995 -- almost seven times the number of corresponding females. However, among both male and female drinking drivers, most had BACs over the legal limit. Some 82% of male drinking drivers had BACs over the legal limit; while 78% of female

drinking drivers had BACs over the legal limit. The average BAC among male drinking drivers was 171 mg% compared to an average BAC of 153 mg% among females.

3.1.3 Vehicle Differences. Table 3-3a and 3-3b present the results of alcohol tests for drivers fatally injured in 1995 according to the type of vehicle being operated: Table 3-3a presents information for drivers of highway vehicles including automobiles, motorcycles, vans, light trucks, heavy trucks, tractor-trailers, motor homes, buses and emergency vehicles; and Table 3-3b shows information for operators of recreational vehicles -- bicycles, snowmobiles, off-road vehicles. Similar to previous tables, these show the number of drivers in each subgroup; the number of drivers tested; and the number of drivers in five BAC categories.

Automobile drivers accounted for the greatest number of fatalities in 1995 (66% of all driver fatalities; 1,266/1,924) followed by operators of light trucks, motorcycle riders, van drivers, tractor-trailer drivers and drivers of heavy trucks.

o Rates of testing for alcohol. Table 3-3a shows that overall, the rate of testing for alcohol among drivers of highway vehicles was 84%. The lowest testing rate (76%) occurred among operators of tractor-trailers. Testing was highest among drivers of emergency vehicles, buses and motor homes (100%). High testing rates were also found among fatally injured operators of vans (94%), heavy trucks (90%) and light trucks (88%).

The rate of testing among operators of recreational vehicles is lower than among operators of highway vehicles. As shown in Table 3-3b, 85% of snowmobile operators were tested for alcohol but only 75% of off-road vehicle drivers and 49% of bicyclists were tested.

o Incidence of alcohol. The results of the alcohol tests are given in Table 3-3a and shown graphically in: Figure 3-5a for automobile drivers and drivers of vans; 3-5b for motorcycle riders and drivers of light trucks; and 3-5c for drivers of heavy trucks and tractor-trailers. A common format of presentation is used in all cases. The

pie chart compares the number and percent of drivers who were sober to the number and percent of drivers who had been drinking. The bar chart displays the BAC distribution among those who were positive for alcohol.

Among fatally injured automobile drivers, 42% had been drinking. Of those who were drinking, the vast majority (81%) had alcohol levels in excess of the legal limit. A similar picture emerges for drivers of vans -- 38% had been drinking and among drinking drivers 80% had BACs over the legal limit. As shown in Figure 3-5b, among motorcycle riders, 46% of the riders killed had been drinking and 69% of these had BACs above the legal limit. The highest incidence of drinking is found among light truck drivers -- 54% had been drinking and 88% of these had illegal BACs. Heavy truck and tractor-trailer drivers have a much lower frequency of alcohol involvement. None of fatally injured tractor-trailer drivers showed any evidence of alcohol while 24% of heavy truck drivers had been drinking. However, considering the nature of the vehicles being operated and that these are professional drivers on-the-job, this lower figure should not necessarily be considered comforting. Three of four (75%) of the fatally injured heavy truck drivers who were positive for alcohol had high BACs. Four of eight operators of motorhomes had been drinking and 75% had high BACs. Finally, as can be seen in Table 3-3a, none of the operators of buses and emergency vehicles had been drinking.

Table 3-3b and Figures 3-5d and 3-5e present information on alcohol use by drivers operating recreational vehicles. As can be seen, among snowmobile drivers, 67% had been drinking. Of those who were drinking, 61% had BACs over the legal limit. A slightly different picture emerges among operators of off-road vehicles -- 56% of them had been drinking and 80% of these drinking drivers had BACs over the legal limit. The majority of fatally injured bicyclists were sober at the time of the collision (77%). However, among those bicyclists who had been drinking, 90% had BACs over the legal limit.

3.1.4 Collision Differences. Table 3-4 presents information on alcohol use by drivers involved in single- and multiple-vehicle collisions. Multiple-vehicle crashes

accounted for about 55% (1,061/1,923) of driver fatalities.

o Rates of testing for alcohol. Similar to the findings from previous years, drivers dying in single-vehicle crashes -- the *type of crash* more strongly associated with impaired driving -- were tested for alcohol somewhat more frequently than those dying in multiple-vehicle crashes (86% vs. 83%).

o Incidence of alcohol. Figure 3-6 shows that among drivers fatally injured in single-vehicle collisions, 65% had been drinking, whereas only 25% of drivers killed in multiple-vehicle collisions had consumed alcohol. Among drinking drivers involved in single-vehicle collisions, about 89% (426/481) had illegal BACs; among those killed in multiple-vehicle collisions, 67% had BACs over the legal limit. And, although not shown in this figure, reference to Table 3-4 indicates that almost one half (42% -- 313/739) of tested drivers and 65% of those who were drinking in single-vehicle collisions had BACs in excess of 150 mg%. In contrast, among drivers fatally injured in multiple-vehicle collisions, the incidence of high BACs was much less frequent -- only 13% of tested drivers had BACs over 150 mg%. However, 53% of those who had been drinking had high BACs.

3.1.5 Jurisdictional Differences. Table 3-5 presents data on alcohol use among fatally injured drivers by jurisdiction in 1995. Similar to other tables in this section, it shows the number of drivers; number and percent tested for alcohol; and the results of those tests for five BAC categories.

o Rates of testing for alcohol. Rates of testing for alcohol ranged from 75% in Prince Edward Island to 100% in the Northwest Territories and the Yukon. The national average is 84%.

o Incidence of alcohol. Figure 3-7 shows the percent of fatally injured drivers with positive BACs in each jurisdiction. Prince Edward Island (55.6%) has the highest percent of fatally injured drivers with positive BACs. The Northwest Territories (0%) has the lowest percent of these drivers.

Similarly, Figure 3-8 shows the proportion of fatally injured drivers with BACs over 80 mg% by jurisdiction. Prince Edward Island (55.6%) has the highest proportion of drivers with illegal BACs and the Northwest Territories (0%) has the lowest.

3.2 TRENDS IN ALCOHOL USE: 1987-1995

Driver fatalities in Canada have generally declined over the past decade and this is illustrated in Figure 3-9, which plots the number of driver fatalities over the nine-year period from 1987 to 1995. As can be seen, the number of driver fatalities reached a peak in 1989. Driver deaths then declined until 1992, increased slightly by 1993 and have levelled off in 1994 and 1995.

The reasons for the observed downward trend beginning in 1990 are not precisely known but are likely related to changes in demographic, social, and economic factors and conditions as well as to the introduction of various road safety countermeasures including seat belt enforcement campaigns and improved vehicle as well as roadway design. It is well recognized that such safety measures benefit all classes of road users, including drinking-drivers. Accordingly, if the number of driver fatalities have declined in the past six years, the number of those who have been drinking should have declined as well. *It is important to recognize that such a decline may be attributable to general road safety countermeasures and may be independent of the effects of countermeasures directed specifically at drinking drivers.* For the latter to have an effect, there must be evidence of a decline in alcohol-related crashes that exceeds the decline in the overall incidence of driver deaths. **This would occur if the proportion of fatally injured drivers who have been drinking exhibits a decrease over time.** If the proportion remained constant, then the safety gains -- declining number of driver deaths -- would be equivalent for drinking and non-drinking drivers alike. But, to repeat, if the percent of fatally injured drivers who have been drinking exhibits a decrease, it suggests that the number of alcohol-related deaths is declining faster than those that are non-alcohol related. In this case, the effects are more likely attributable to countermeasures targeted specifically at drinking drivers.

To examine this possibility, the present report focuses on changes in the proportion of fatally injured drivers who have been drinking. If this index has declined it suggests a beneficial impact of drinking-driving countermeasures.

3.2.1 Alcohol Among All Drivers. The *Fatality Database* contain relevant historical information for 23 years (1973-1995) from seven provinces: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, and Prince Edward Island. The collection of complete national data on alcohol use among driver fatalities began in 1987. As a consequence, complete national data are available for only nine years and these relevant data are shown in Table 3-6. As is the practice in the previous section, the table excludes operators of snowmobiles, bicycles and farm-tractors. As a consequence, these driver fatalities include primarily operators of automobiles, motorcycles, trucks/vans and tractor-trailers. Given these selection criteria, the number of drivers shown in the second column of the table do not correspond to the number of driver fatalities plotted in Figure 3-9.

As mentioned in the previous section, the number of driver fatalities has generally declined over the past nine years. The data in Table 3-6 suggest that the factors that influenced this overall downward trend affected drinking and non-drinking drivers differently. For example, if both drinking and non-drinking drivers were affected in a similar manner, the proportion of fatally injured drivers who were sober (and reciprocally, the percent who were positive for alcohol) should remain basically unchanged over this nine-year period. This is decidedly not the case as shown in Figure 3-10 which provides trends in alcohol use among driver fatalities over the nine-year period (1987-1995, inclusive). The figure shows the changes in the percent of fatally injured drivers who: (1) were sober (represented by the line); (2) had a BAC of 1-80 mg% (given by the striped bars); (3) had a BAC of 81-150 (shown by the stippled bar); and, (4) had a BAC over 150 mg% (the solid bar). As can be seen, these data clearly indicate positive change in the fatal-alcohol crash problem -- **the proportion of fatally injured drivers who show no evidence of alcohol use (the upper line) has been increasing.** In 1987, 47% of fatally injured drivers were sober, compared to 57% in 1995. Moreover, over this nine-year period there has been a decline in the percent of

drivers with high BACs -- 32% in 1987 compared to 27% in 1995. The only disruption in this overall trend occurred between 1990 and 1992 when the percent of fatally injured drivers who were sober decreased.

In summary, over the past decade there has been an overall downward trend in the number of driver fatalities. Coincidental with this trend has been a decline in the percent of fatally injured drinking drivers, with the exception of the period between 1990 and 1992. These findings suggest that inroads have been made in addressing the alcohol-fatal crash problem. In the following sections, trends in alcohol use are examined for drivers of various types of vehicles -- automobiles, trucks/vans combined, motorcycles, and tractor-trailers -- to determine whether they all reflect the same general trend as described above or whether there are differences.

3.2.2 Alcohol Use Among Automobile Drivers. Trends in alcohol use among fatally injured automobile drivers are shown in Figure 3-11. As can be seen, the pattern for automobile drivers mimics that described above for drivers of all types of vehicles (this should not be surprising given that the number of automobile drivers comprises such a large proportion of all driver fatalities). The percent of sober drivers increased from 1987 to 1990, decreased until 1992, and then increased again from 1993 to 1995. Among automobile drivers, the incidence of high BACs decreased from 1987 to 1990, increased in 1991 and then declined until 1993. The proportion of fatally injured drivers with high BACs increased in 1994 and then decreased slightly in 1995. The incidence of drivers with low and moderate BACs has remained relatively stable over the past two years.

3.2.3 Alcohol Use Among Drivers of Trucks/Vans. A slightly different picture emerges for drivers of trucks/vans. As shown in Figure 3-12, the increase in the percent of sober drivers over the past nine years has not been as pronounced. Similar to the trend for automobile drivers, there was a decrease from 1990 to 1992 in the percent of fatally injured truck drivers who had not been drinking. The percent of sober truck/van drivers increased in 1993 and again in 1994 but dropped in 1995. And, while the incidence of drivers with low to moderate BACs has been relatively stable since 1991

the incidence of drivers with high BACs has generally fluctuated.

3.2.4 Alcohol Use Among Motorcycle Riders. There is a relatively small number of motorcycle riders fatally injured each year. The results are shown in Figure 3-13. The trend in alcohol use among fatally injured motorcycle riders does not parallel that for drivers of other vehicles. Between 1987 and 1989 there was a noticeable increase in the percent of riders who were sober (i.e., a decrease in the proportion of those who tested positive for alcohol). The proportion of sober riders decreased between 1989 and 1991 and then increased in 1992. In the past four years, there has been little change in the percent of riders who were sober. Since 1993 the percent of riders with low BACs has risen steadily but the percent with moderate BACs has dropped. The percent of riders with high BACs has fluctuated only slightly in this same period.

3.2.5 Alcohol Use Among Tractor-Trailer Drivers. The number of tractor-trailer drivers fatally injured each year is far less than even the number of motorcycle riders. The data are shown in Figure 3-14. As can be seen, the incidence of "sober" drivers in this group has shown an increase over the past nine years. In 1987, about 27% of these drivers showed evidence of alcohol use (i.e., about 73% were sober); in recent years the incidence of alcohol use has declined to 0% -- i.e., in 1995 none of the 29 drivers tested showed any evidence of alcohol use.

B. Alcohol Use Among Fatally Injured Pedestrians

This section of the report contains (1) general descriptive information on the frequency and quantity of alcohol found in pedestrians struck and fatally injured by motor vehicles in Canada during 1995 and (2) trends in alcohol use among pedestrian fatalities over the past nine years. The first part includes information from all jurisdictions in Canada.

3.3 GENERAL FINDINGS

During 1995, as shown by the totals at the bottom of Table 3-7, there were 493 pedestrians who were struck and fatally injured in Canada by motor vehicles. The

overall rate of testing for alcohol in pedestrians killed in Canada in 1995 was 61.5%. The testing rate increases to 66.7% for fatally injured pedestrians age 16 and over.

As the totals at the bottom of Table 3-7 indicate, among tested pedestrians in Canada:

- o 58.7% showed no evidence of alcohol;
- o 4.6% had BACs below 50 mg%;
- o 2.6% had BACs from 50 to 80 mg%;
- o 8.6% had BACs from 81 to 150 mg%; and,
- o 25.4% had BACs over 150 mg%.

Thus, 41% of fatally injured pedestrians in Canada had been drinking and most of these had BACs over 80 mg%. The average BAC among fatally injured drinking pedestrians was 178 mg%, somewhat higher than the average BAC of fatally injured drinking drivers -- 169 mg%.

3.3.1 Age Differences. Table 3-7 presents data on alcohol use among fatally injured pedestrians of various ages in 1995. For each age group the following information is given in the table: the total number of pedestrians killed; the number and percent who were tested for alcohol; and the results of the alcohol tests -- this includes the number and percent of those tested in each of five categories of blood alcohol concentration.

o Rates of testing for alcohol. Rates of testing (the third column in Table 3-7) clearly vary as a function of the age of the victim. This is depicted graphically in Figure 3-15. The lowest testing rates are found among pedestrians under the age of 16 (27%) and those over the age of 55 (56%). The testing rate for other age groups of pedestrians is high, ranging from 69% among 18-19 year olds to 81% among 46-55 year olds.

o Incidence of alcohol. As described above, Table 3-7 provides information on the presence of alcohol in fatally injured pedestrians of various ages. These data are

summarized in Figure 3-16. The number of age groups and the BAC categories have been compressed somewhat to facilitate presentation. For each age group, the percent of pedestrians who were sober (zero BAC) is shown by the lower, solid portion of the bar; the percent who were positive for alcohol but whose BAC was below 80 mg% is shown by the striped section in the middle, and the percent with BACs over 80 mg% is shown by the upper, stippled part of the bar.

As can be seen, alcohol was detected less frequently among pedestrians over the age of 55 (18%). Alcohol was most frequently detected among pedestrians age 20-25 (83%).

Figure 3-17 presents information in a slightly different manner. It shows the percent of all drinking pedestrians accounted for by each age group. The bar in the left shows the proportion of all fatally injured pedestrians with BACs below 80 mg% accounted for by each age group. On the right is shown the proportion of pedestrians with BACs over 80 mg% accounted for by each age group. Pedestrians over 55 account for more than one-third (36%) of the fatally injured pedestrians with BACs below 80 mg%. Almost one quarter (23%) of drinking pedestrians with BACs over 80 mg% are in the 26-35 age group.

3.3.2 Gender differences. Data on alcohol use among male and female pedestrians are shown in Table 3-8. The table contains the same information as described above for Table 3-7 (i.e., number of pedestrians; number and percent tested for alcohol; and the results of those tested for five BAC categories). In 1995, males accounted for 58% of the pedestrians killed in Canada (284/493).

o Rates of testing for alcohol. Testing for alcohol varies as a function of gender. Males are more likely to be tested than females (testing rates of 66% and 55%, respectively). These testing rates increase if fatally injured pedestrians under the age of 16 are excluded from the analysis -- a testing rate of 72% for males and 59% for females.

o Incidence of alcohol. Figure 3-18 presents the findings for alcohol use among fatally injured male and female pedestrians. The pie chart shows the proportion of those pedestrians who were sober (i.e., 0 BAC) and those positive for alcohol (+ BAC). The bar to the right of the pie chart shows the distribution of alcohol levels found among those who were drinking; the percent who had BACs above and below 80 mg%. Percentages are given inside the figures; the absolute number of cases is shown adjacent to the figure.

Among fatally injured male pedestrians, 53% had been drinking. In contrast, the lower portion of the figure shows that the majority of female pedestrians were sober (78% showed no evidence of alcohol). However, among both male and female drinking pedestrians, most have BACs over 80 mg%, 83% of male drinking pedestrians had BACs over 80 mg%; while 80% of female drinking pedestrians had BACs over 80 mg%.

3.3.3 Jurisdictional differences. Table 3-9 presents the results of alcohol tests for fatally injured pedestrians in 1995 for each province and territory. Similar to previous tables, this one shows the number of pedestrians in each jurisdiction; the number of pedestrians tested; and the number of pedestrians in five BAC categories.

o Rates of testing alcohol. Table 3-9 shows that overall the rate of testing for alcohol was 61.5%. The lowest testing rate (0%) occurs in the Northwest Territories. Testing was highest in Newfoundland (83%).

o Incidence of alcohol. The highest incidence of alcohol in fatally injured pedestrians was in Alberta -- 63% of pedestrians had been drinking. The lowest incidence of alcohol was in New Brunswick where 86% of fatally injured pedestrians were sober. High BACs were characteristic of fatally injured drinking pedestrians in all jurisdictions. For example, in Alberta among tested fatally injured pedestrians, 44% had BACs over 150 mg% and 9% had BACs between 81-150 mg%.

3.4 TRENDS IN ALCOHOL USE: 1987-1995

Table 3-10 shows data on alcohol use among fatally injured pedestrians for 1987 to 1995. These data are based on pedestrians who died after being struck by a motor vehicle.

Given this selection criteria, the testing rate for alcohol ranges from 48% to a high of 62% over this nine-year period.

The data shown in the second column of the table also indicates that pedestrian fatalities have generally declined from a peak of 760 in 1987 to 493 pedestrians killed in 1995 -- a 35% decrease. This overall pattern -- a decrease in the number of pedestrian fatalities -- is consistent with other sources of information.

Figure 3-19 shows the percent of fatally injured pedestrians who: (1) were sober (represented by the line); (2) had a BAC of 1-80 mg% (given by the striped bars); (3) had a BAC of 81-150 (shown by the stippled bar); and (4) had a BAC over 150 mg% (the solid bar).

As can be seen, between 1987 and 1995 the proportion of fatally injured pedestrians who show no evidence of alcohol has remained relatively stable. The possible exception is in 1995 when the incidence of fatally injured pedestrians who were sober increased to its highest level over this nine-year time period. The incidence of fatally injured pedestrians with high BACs decreased between 1987 and 1989, increased in 1990, remained stable until 1993, increased in 1994, and then decreased in 1995.

Table 3-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Canada, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
< 16	11	9 (81.8)	7 (77.8)	1 (11.1)	0 (0.0)	0 (0.0)	1 (11.1)
16-17	66	52 (78.8)	38 (73.1)	2 (3.8)	1 (1.9)	8 (15.4)	3 (5.8)
18-19	122	109 (89.3)	61 (56.0)	7 (6.4)	4 (3.7)	15 (13.8)	22 (20.2)
20-25	319	286 (89.7)	119 (41.6)	22 (7.7)	11 (3.8)	46 (16.1)	88 (30.8)
26-35	439	388 (88.4)	172 (44.3)	17 (4.4)	14 (3.6)	40 (10.3)	145 (37.4)
36-45	319	281 (88.1)	142 (50.5)	9 (3.2)	8 (2.8)	20 (7.1)	102 (36.3)
46-55	224	192 (85.7)	133 (69.3)	8 (4.2)	3 (1.6)	6 (3.1)	42 (21.9)
> 55	424	300 (70.8)	243 (81.0)	18 (6.0)	4 (1.3)	8 (2.7)	27 (9.0)
TOTAL	1,924	1,617 (84.0)	915 (56.6)	84 (5.2)	45 (2.8)	143 (8.8)	430 (26.6)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 3-1
Frequency of Testing for Alcohol
Among Drivers of Various Ages: 1995

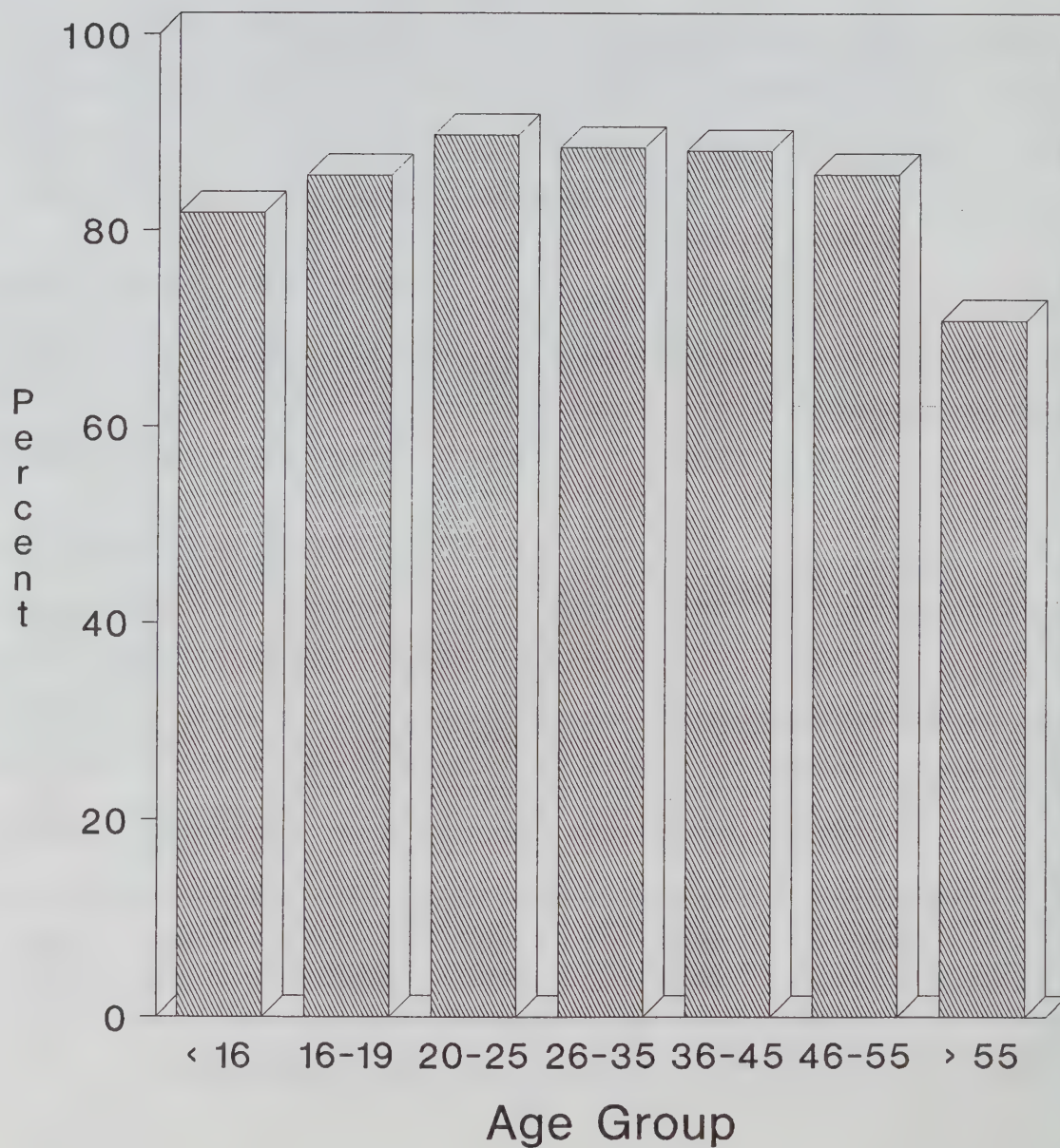


Figure 3-2
Alcohol Use Among Drivers of
Different Ages: Canada, 1995

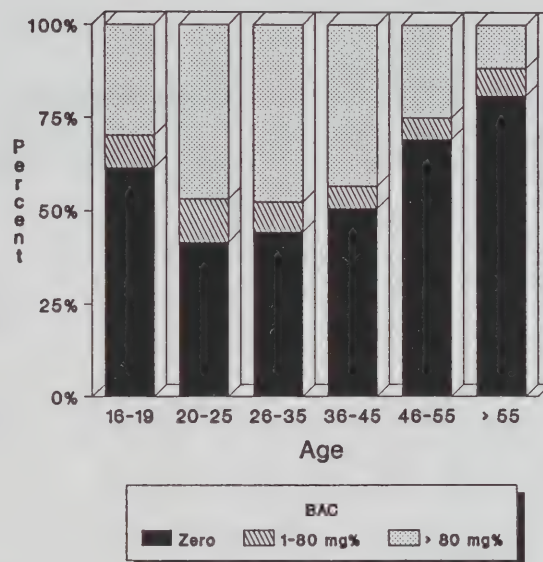


Figure 3-3
Proportion of Drinking Drivers by Age
Canada, 1995

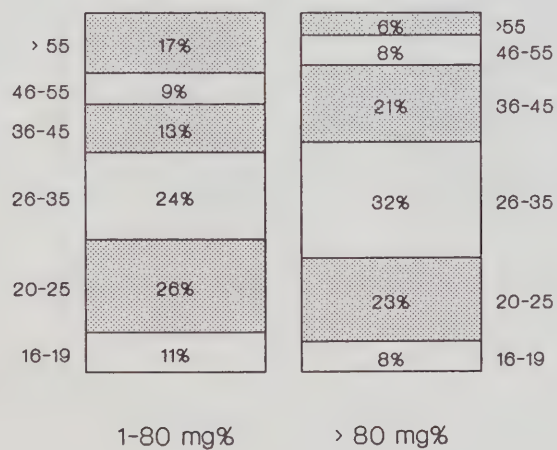


Table 3-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Canada, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	1,537	1,305 (84.9)	697 (53.4)	71 (5.4)	37 (2.8)	118 (9.0)	382 (29.3)
FEMALE	387	312 (80.6)	218 (69.9)	13 (4.2)	8 (2.6)	25 (8.0)	48 (15.4)
TOTAL	1,924	1,617 (84.0)	915 (56.6)	84 (5.2)	45 (2.8)	143 (8.8)	430 (26.6)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 3-4
Alcohol Use Among Male and Female
Drivers: Canada, 1995

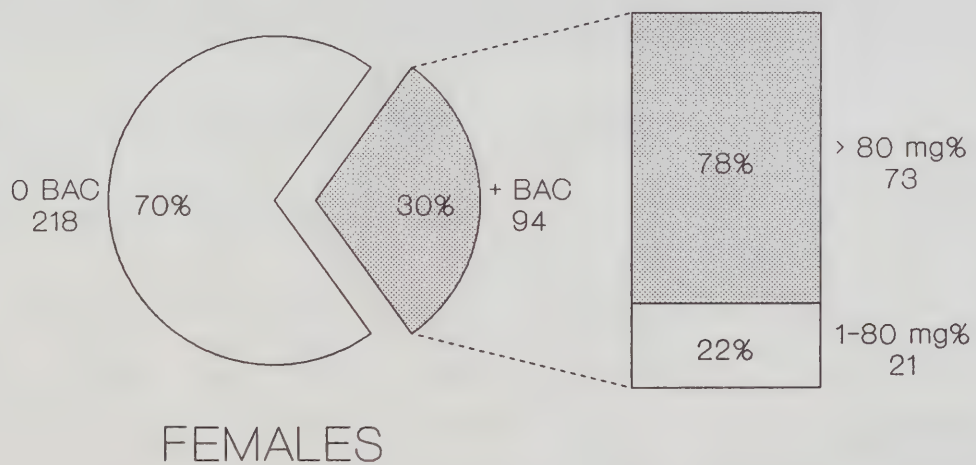
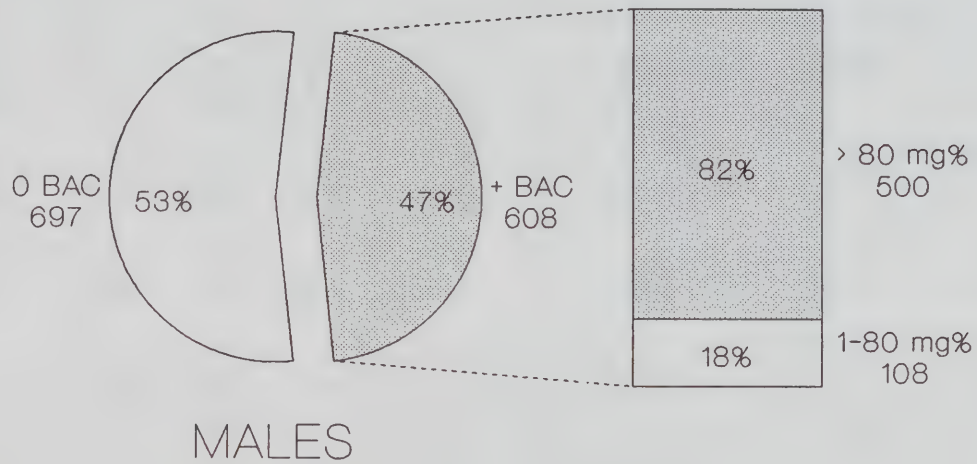


Table 3-3a

Alcohol Use Among Fatally Injured Drivers:
Type of Highway Vehicle Involved

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	1,266	1,047 (82.7)	607 (58.0)	52 (5.0)	31 (3.0)	97 (9.3)	260 (24.8)
MOTORCYCLE	155	125 (80.6)	67 (53.6)	10 (8.0)	8 (6.4)	9 (7.2)	31 (24.8)
TRACTOR- TRAILER	38	29 (76.3)	29 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
HEAVY TRUCK*	19	17 (89.5)	13 (76.5)	0 (0.0)	1 (5.9)	1 (5.9)	2 (11.8)
VAN	69	65 (94.2)	40 (61.5)	5 (7.7)	0 (0.0)	5 (7.7)	15 (23.1)
MOTOR- HOME	8	8 (100.0)	4 (50.0)	1 (12.5)	0 (0.0)	1 (12.5)	2 (25.0)
LIGHT TRUCK**	360	317 (88.1)	146 (46.1)	16 (5.0)	5 (1.6)	30 (9.5)	120 (37.9)
OTHER TRUCK***	5	5 (100.0)	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
BUS	1	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
EMERGENCY VEHICLE	3	3 (100.0)	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	1,924	1,617 (84.0)	915 (56.6)	84 (5.2)	45 (2.8)	143 (8.8)	430 (26.6)

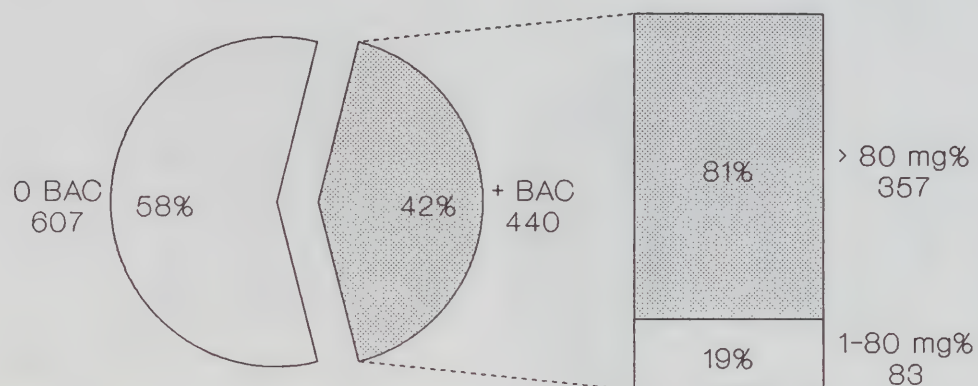
* Trucks over 4500 kg.

** eg., pick-up trucks.

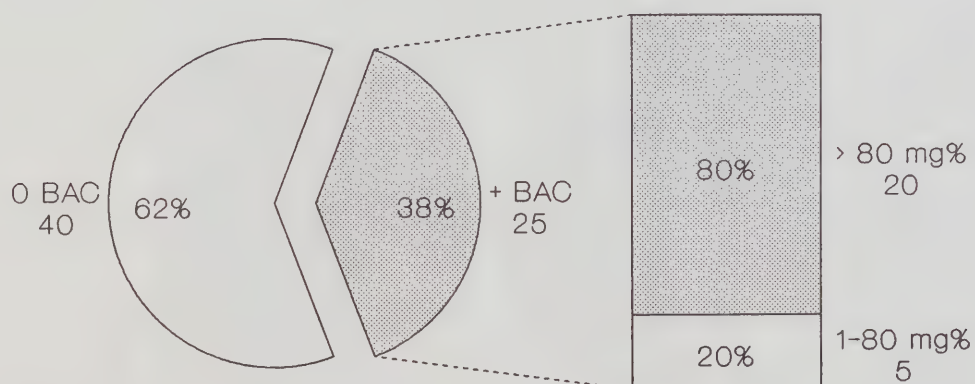
*** Includes utility vehicles, plows and trucks of unknown type.

The vehicle types that appear in the shaded area, correspond to the truck/van category used in previous reports.

Figure 3-5a
Alcohol Use Among Drivers of Different
Types of Vehicles: Canada, 1995

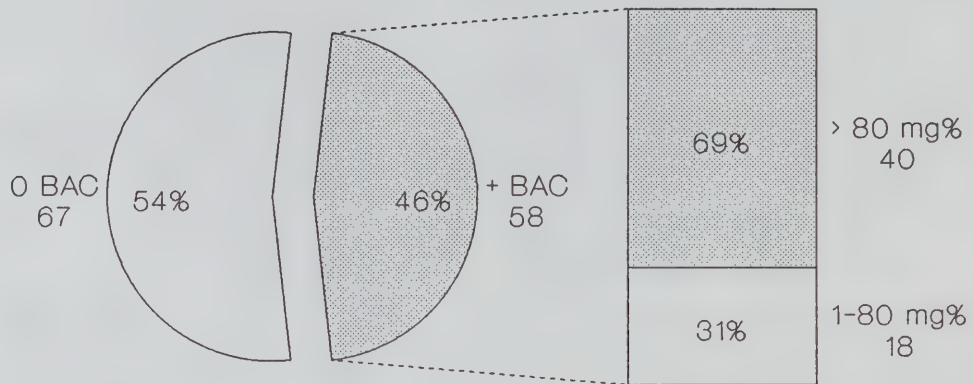


AUTOMOBILE DRIVERS

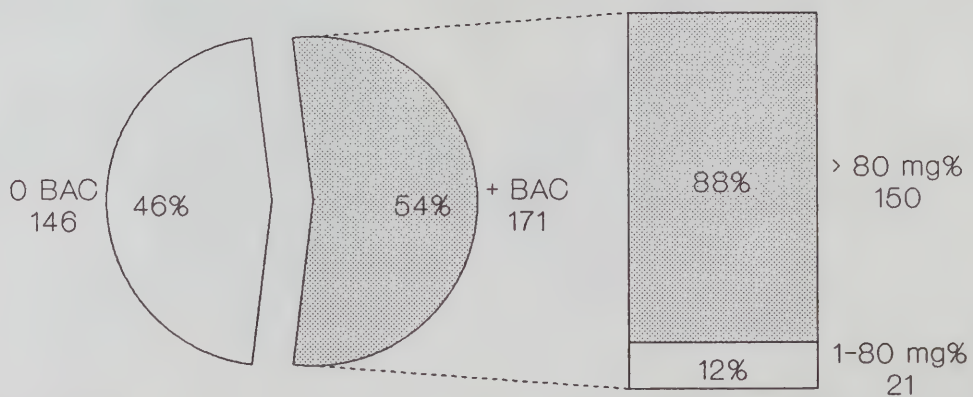


VAN DRIVERS

Figure 3-5b
Alcohol Use Among Drivers of Different
Types of Vehicles: Canada, 1995

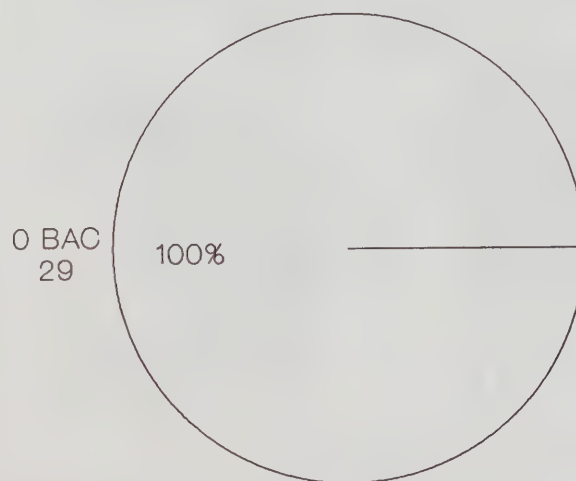
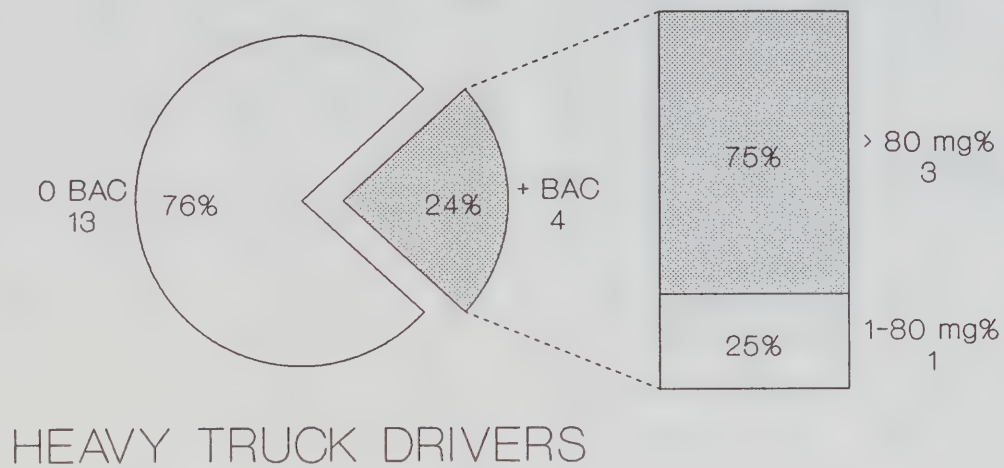


MOTORCYCLE RIDERS



LIGHT TRUCK DRIVERS

Figure 3-5c
Alcohol Use Among Drivers of Different
Types of Vehicles: Canada, 1995



TRACTOR-TRAILER DRIVERS

Table 3-3b

**Alcohol Use Among Fatally Injured Drivers:
Type of Recreational Vehicle Involved**

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
BICYCLE	90	44 (48.8)	34 (77.3)	1 (2.3)	0 (0.0)	2 (4.5)	7 (15.9)
SNOWMOBILE	86	73 (84.9)	24 (32.9)	13 (17.8)	6 (8.2)	11 (15.1)	19 (26.0)
OFF-ROAD VEHICLE	24	18 (75.0)	8 (44.4)	1 (5.6)	1 (5.6)	2 (11.1)	6 (33.3)
TOTAL	200	135 (67.5)	66 (48.9)	15 (11.1)	7 (5.2)	15 (11.1)	32 (23.7)

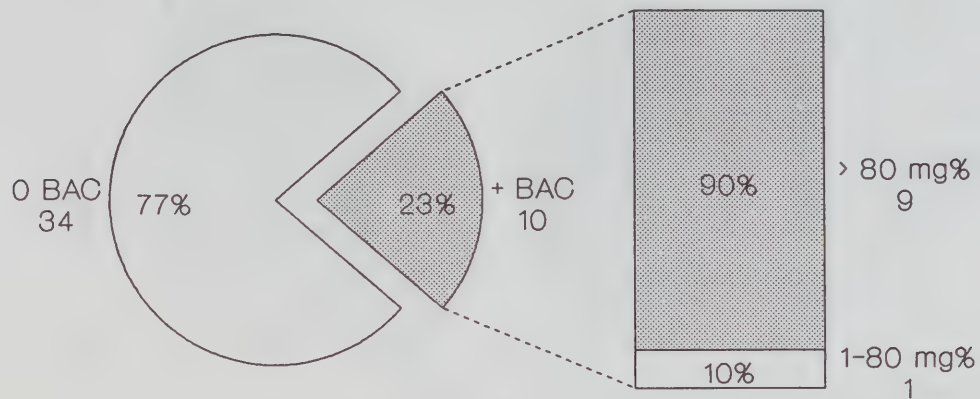
Table 3-4

**Alcohol Use Among Fatally Injured Drivers:
Type of Collision**

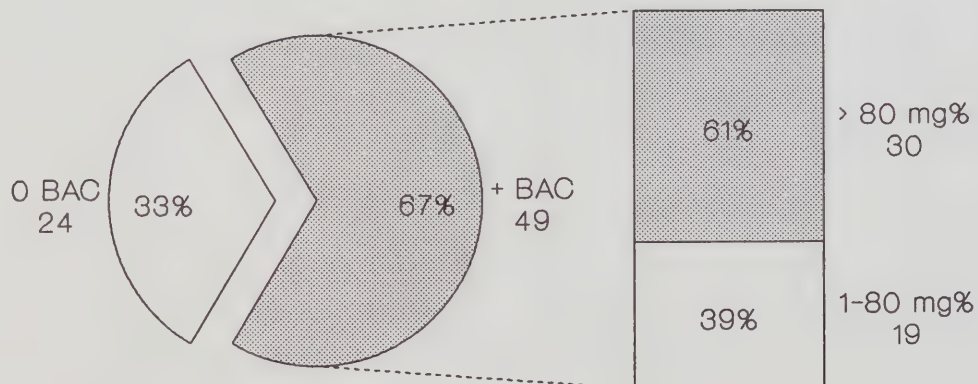
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	862	739 (85.7)	258 (34.9)	30 (4.1)	25 (3.4)	113 (15.3)	313 (42.4)
MULTIPLE- VEHICLE	1,061	878 (82.8)	657 (74.8)	54 (6.2)	20 (2.3)	30 (3.4)	117 (13.3)
TOTAL	1,923	1,617 (84.1)	915 (56.6)	84 (5.2)	45 (2.8)	143 (8.8)	430 (26.6)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 3-5d
Alcohol Use Among Drivers of Different
Types of Vehicles: Canada, 1995



BICYCLISTS



SNOWMOBILE OPERATORS

Figure 3-5e
Alcohol Use Among Drivers of Different
Types of Vehicles: Canada, 1995

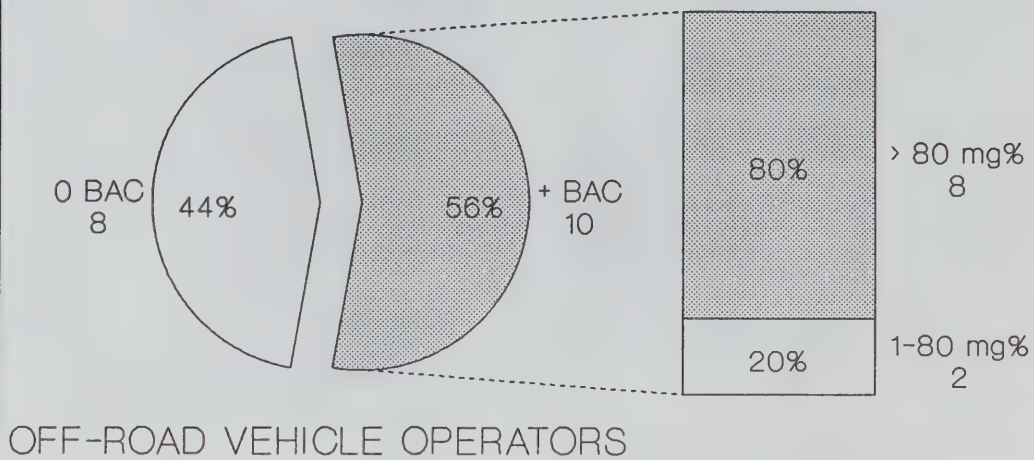


Figure 3-6
Alcohol Use Among Drivers in Single and
Multiple Vehicle Crashes: Canada, 1995

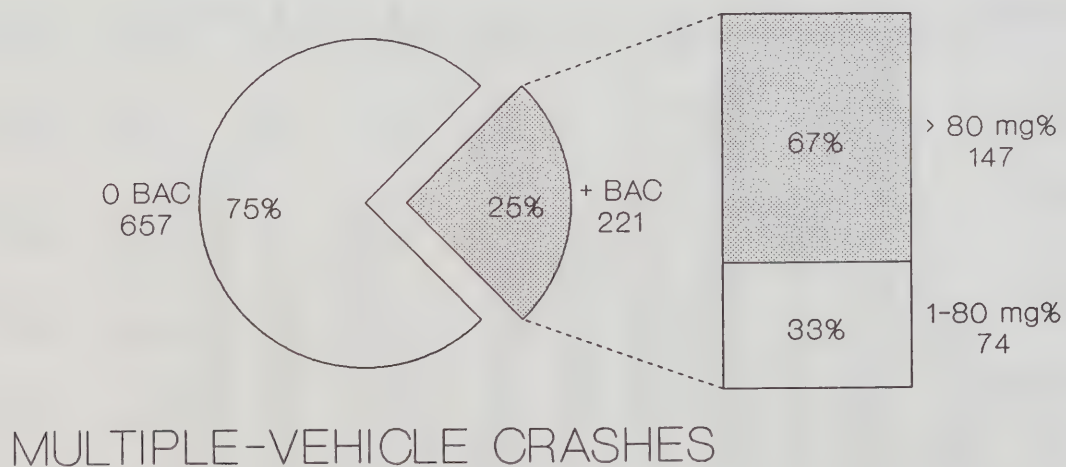
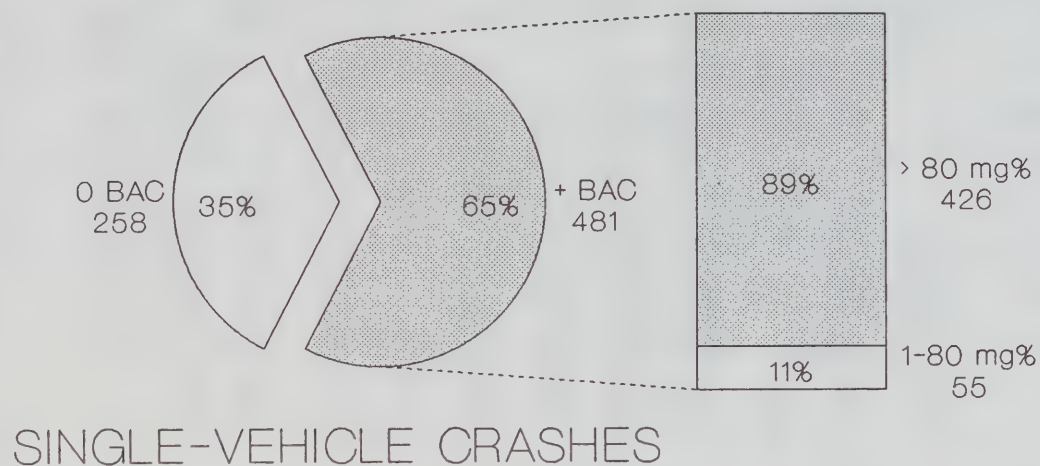


Table 3-5

Alcohol Use Among Fatally Injured Drivers:
by Province/Territory: 1995

PROVINCE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
British Columbia	287	249 (86.8)	121 (48.6)	12 (4.8)	8 (3.2)	27 (10.8)	81 (32.5)
Alberta	225	215 (95.6)	141 (65.6)	6 (2.8)	4 (1.9)	15 (7.0)	49 (22.8)
Saskatchewan	81	79 (97.5)	42 (53.2)	3 (3.8)	3 (3.8)	4 (5.1)	27 (34.2)
Manitoba	70	54 (77.1)	32 (59.3)	4 (7.4)	4 (7.4)	1 (1.9)	13 (24.1)
Ontario	630	525 (83.3)	306 (58.3)	35 (6.7)	12 (2.3)	42 (8.0)	130 (24.8)
Quebec	465	361 (77.6)	201 (55.7)	16 (4.4)	12 (3.3)	43 (11.9)	89 (24.7)
New Brunswick	70	56 (80.0)	30 (53.6)	4 (7.1)	0 (0.0)	2 (3.6)	20 (35.7)
Prince Edward Island	12	9 (75.0)	4 (44.4)	0 (0.0)	0 (0.0)	2 (22.2)	3 (33.3)
Nova Scotia	67	53 (79.1)	26 (49.1)	4 (7.5)	2 (3.8)	5 (9.4)	16 (30.2)
Newfoundland	11	10 (90.9)	7 (70.0)	0 (0.0)	0 (0.0)	1 (10.0)	2 (20.0)
Yukon Territory	4	4 (100.0)	3 (75.0)	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)
Northwest Territories	2	2 (100.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	1,924	1,617 (84.0)	915 (56.6)	84 (5.2)	45 (2.8)	143 (8.8)	430 (26.6)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 3-7
Percent of Drivers With Positive BACs
by Jurisdiction: Canada, 1995

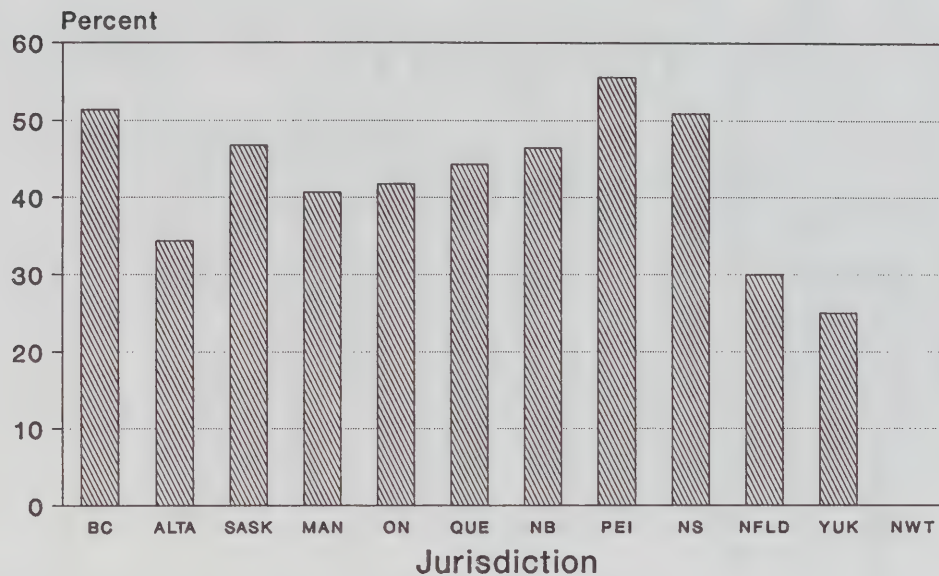


Figure 3-8
Percent of Drivers with BACs over 80 mg%
by Jurisdiction: Canada, 1995

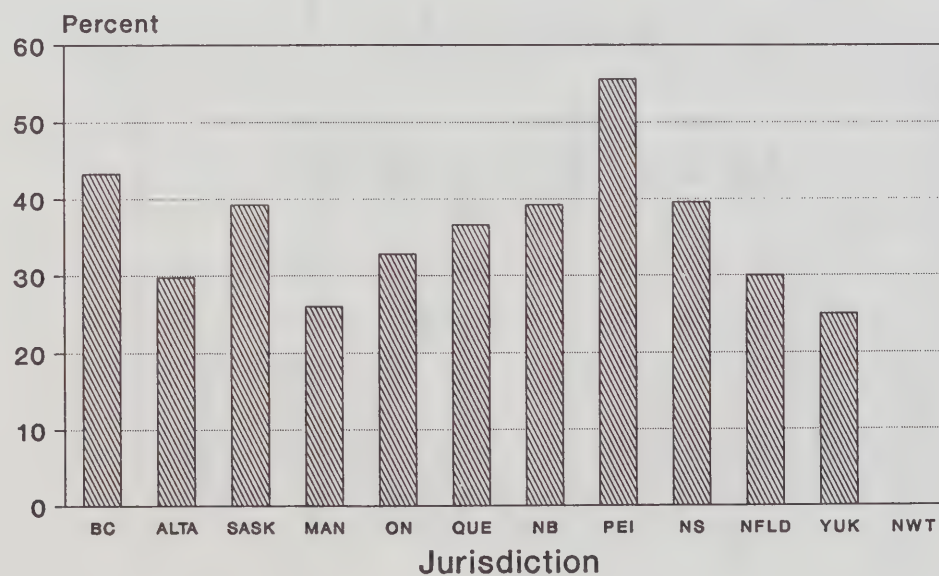
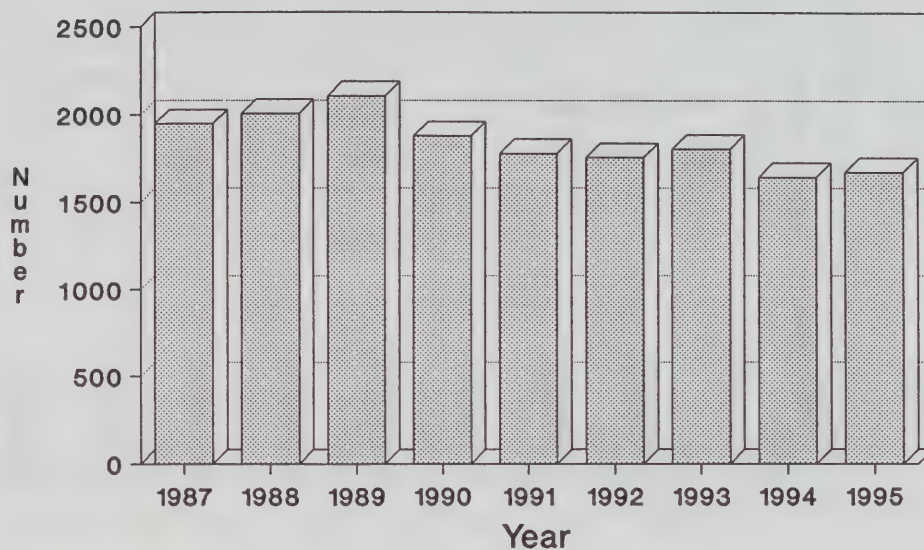


Table 3-6
Alcohol Use Among Fatally Injured Drivers:
Nine-Year Trend

<u>Year</u>	<u>Number of Drivers</u>	<u>Number of Drivers Tested*</u>	<u>Percent Tested</u>	<u>Drivers Grouped by BAC (mg%)</u>							
				<u>Zero BAC</u>		<u>1 - 80 mg%</u>		<u>81 - 150 mg%</u>		<u>> 150 mg%</u>	
				<u>No.</u>	<u>% of Tested</u>	<u>No.</u>	<u>% of Tested</u>	<u>No.</u>	<u>% of Tested</u>	<u>No.</u>	<u>% of Tested</u>
1987	2250	1721	76.5	807	46.9	172	10.0	191	11.1	551	32.0
1988	2326	1796	77.2	887	49.4	186	10.3	184	10.2	539	30.0
1989	2384	1872	78.5	1002	53.5	143	7.7	206	11.0	521	27.8
1990	2181	1756	80.5	959	54.6	155	8.8	159	9.1	483	27.5
1991	2067	1635	79.1	850	52.0	127	7.8	168	10.3	490	30.0
1992	1981	1585	80.0	823	51.9	126	7.9	165	10.4	471	29.7
1993	2043	1677	82.1	928	55.3	115	6.9	162	9.7	472	28.1
1994	1886	1602	84.9	899	56.1	127	6.9	143	8.9	443	27.0
1995	1924	1617	84.0	915	56.6	133	8.0	143	8.8	430	26.6

*Excludes operators of bicycles, snowmobiles, farm tractors and other non-highway vehicles

Figure 3-9
Trend in Driver Fatalities in Canada
1987 to 1995



TRANSPORT CANADA

Figure 3-10
Trends in Alcohol Use Among
Driver Fatalities: 1987-95

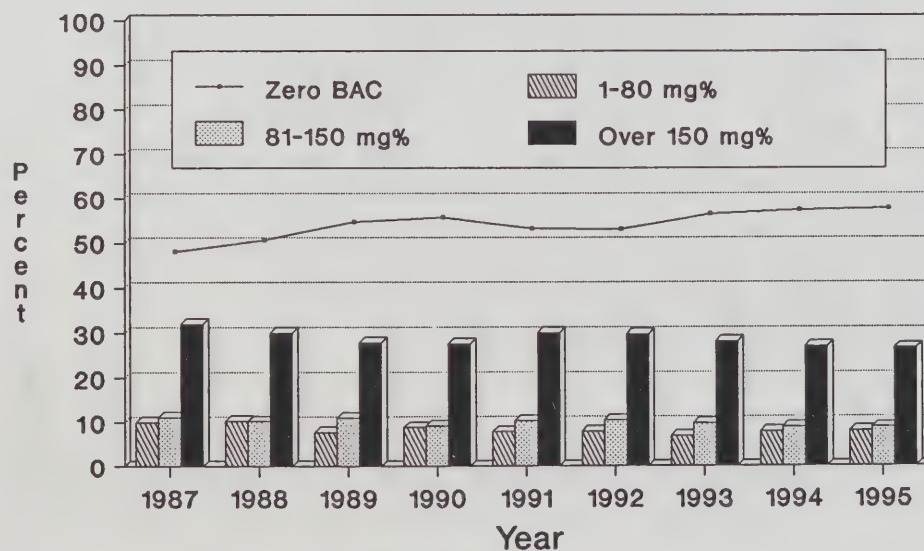


Figure 3-11
Trends in Alcohol Use Among Automobile
Driver Fatalities: 1987-95

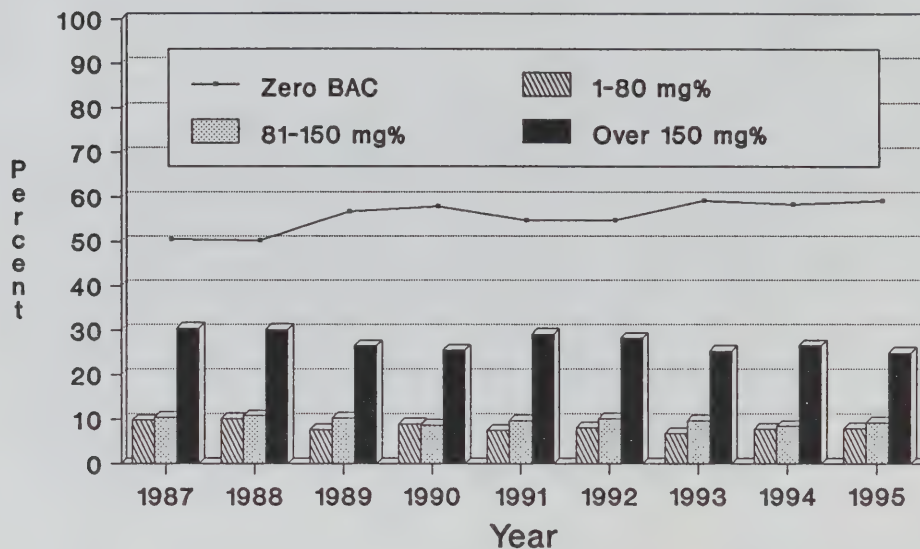


Figure 3-12
Trends in Alcohol Use Among Truck/Van
Driver Fatalities: 1987-95

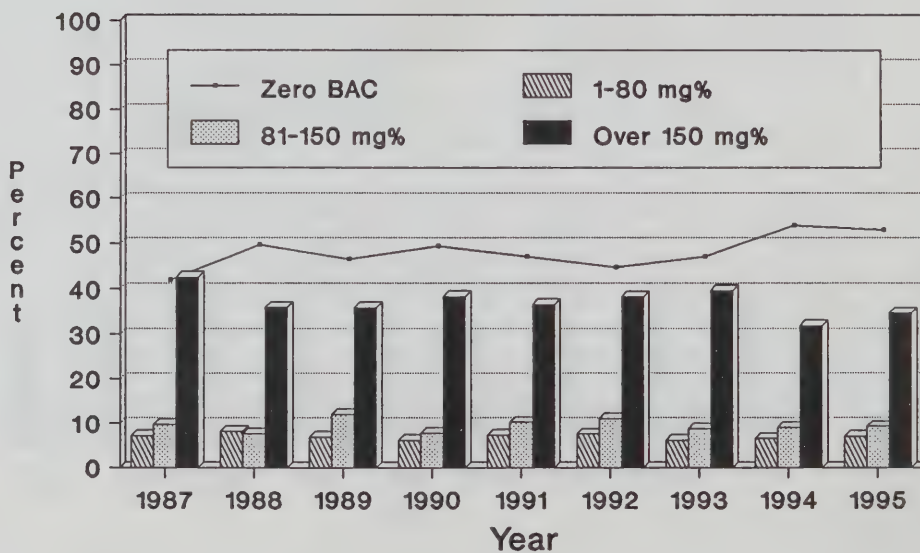


Figure 3-13
Trends in Alcohol Use Among Motorcycle
Driver Fatalities: 1987-95

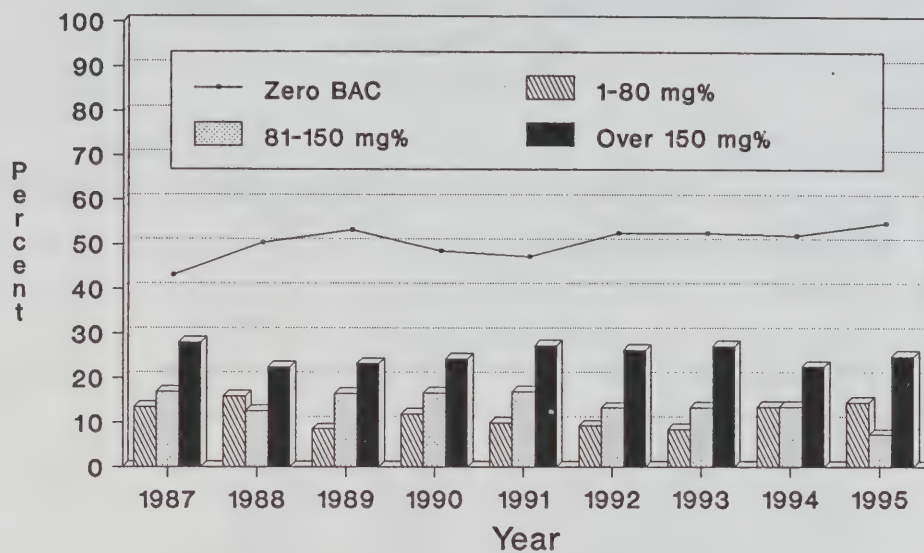


Figure 3-14
Trends in Alcohol Use Among Tractor-
Trailer Driver Fatalities: 1987-95

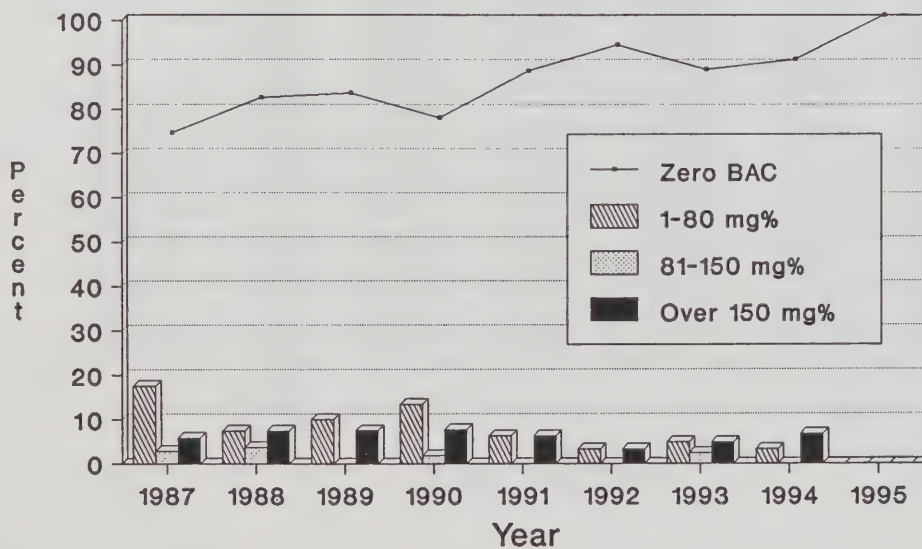


Table 3-7

Alcohol Use Among Fatally Injured Pedestrians:
Age of Pedestrians
(Canada, 1995)

AGE	Number of Pedestrians	Pedestrians Tested (% of total)	Pedestrians Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
< 16	64	17 (26.6)	14 (82.4)	0 (0.0)	0 (0.0)	3 (17.6)	0 (0.0)
16-17	20	15 (75.0)	11 (73.3)	0 (0.0)	0 (0.0)	2 (13.3)	2 (13.3)
18-19	16	11 (68.8)	3 (27.3)	1 (9.1)	0 (0.0)	3 (27.3)	4 (36.4)
20-25	39	29 (74.4)	5 (17.2)	0 (0.0)	2 (6.9)	3 (10.3)	19 (65.5)
26-35	54	39 (72.2)	13 (33.3)	2 (5.1)	1 (2.6)	3 (7.7)	20 (51.3)
36-45	56	45 (80.4)	20 (44.4)	5 (11.1)	1 (2.2)	2 (4.4)	17 (37.8)
46-55	41	33 (80.5)	18 (54.5)	0 (0.0)	2 (6.1)	4 (12.1)	9 (27.3)
> 55	203	114 (56.2)	94 (82.5)	6 (5.3)	2 (1.8)	6 (5.3)	6 (5.3)
TOTAL	493	303 (61.5)	178 (58.7)	14 (4.6)	8 (2.6)	26 (8.6)	77 (25.4)

Figure 3-15
Frequency of Testing for Alcohol Among
Pedestrians of Various Ages: 1995

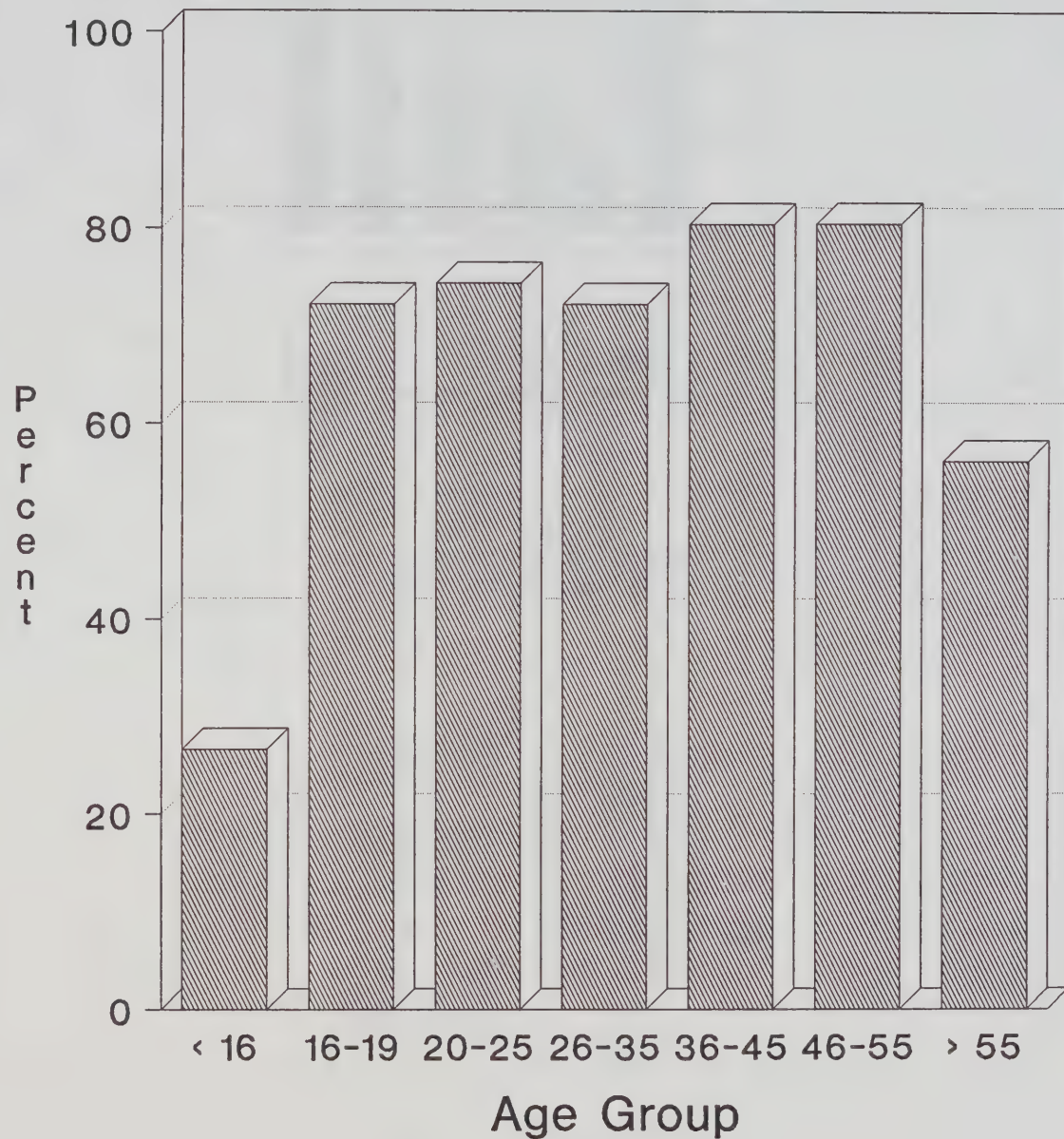


Figure 3-16
Alcohol Use Among Pedestrians of
Different Ages: Canada, 1995

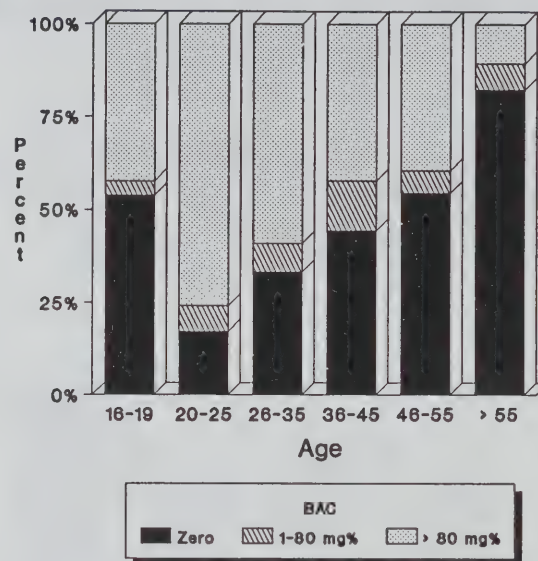


Figure 3-17
Proportion of Drinking Pedestrians
by Age: Canada, 1995

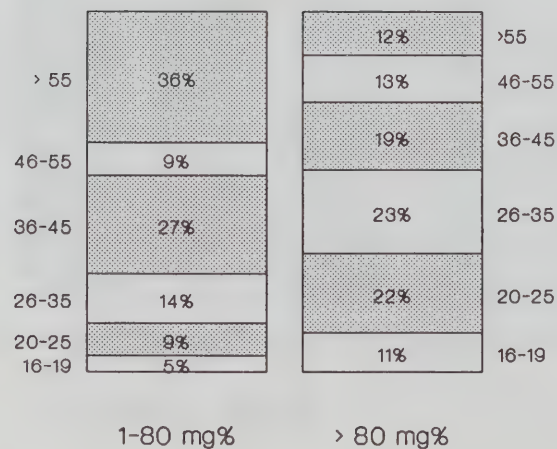


Table 3-8

Alcohol Use Among Fatally Injured Pedestrians:
Sex of Pedestrians
(Canada, 1995)

SEX	Number of Pedestrians	Pedestrians Tested (% of total)	Pedestrians Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	284	188 (66.2)	88 (46.8)	10 (5.3)	7 (3.7)	20 (10.6)	63 (33.5)
FEMALE	209	115 (55.0)	90 (78.3)	4 (3.5)	1 (0.9)	6 (5.2)	14 (12.2)
TOTAL	493	303 (61.5)	178 (58.7)	14 (4.6)	8 (2.6)	26 (8.6)	77 (25.4)

Figure 3-18
Alcohol Use Among Male and Female
Pedestrians: Canada, 1995

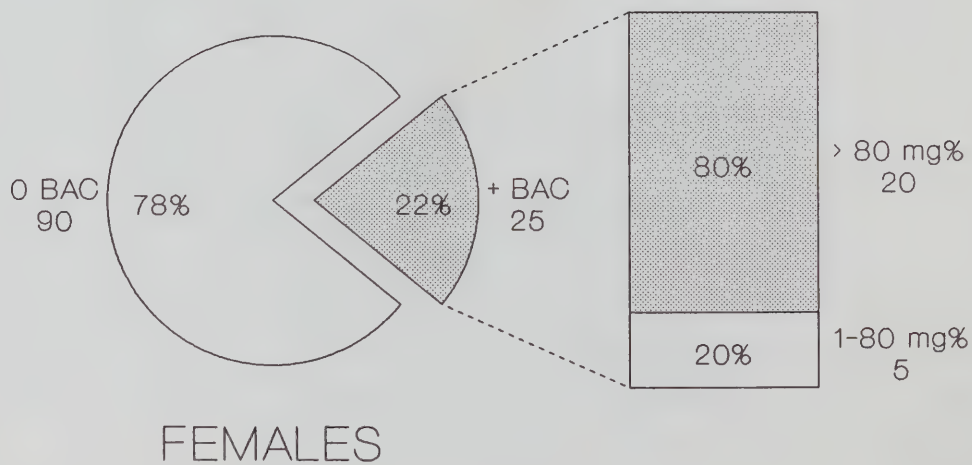
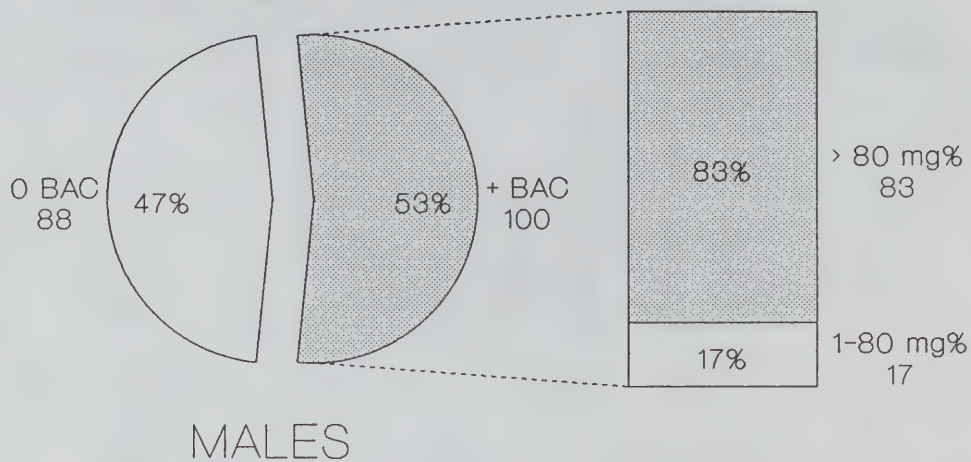


Table 3-9

Alcohol Use Among Fatally Injured Pedestrians:
Jurisdictions
(Canada, 1995)

Jurisdiction	Number of Pedestrians	Pedestrians Tested (% of total)	Pedestrians Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
British Columbia	69	46 (66.7)	27 (58.7)	0 (0.0)	2 (4.3)	6 (13.0)	11 (23.9)
Alberta	54	43 (79.6)	16 (37.2)	1 (2.3)	3 (7.0)	4 (9.3)	19 (44.2)
Saskatchewan	23	14 (60.9)	8 (57.1)	1 (7.1)	0 (0.0)	2 (14.3)	3 (21.4)
Manitoba	18	12 (66.7)	5 (41.7)	2 (16.7)	0 (0.0)	0 (0.0)	5 (41.7)
Ontario	157	90 (57.3)	54 (60.0)	7 (7.8)	1 (1.1)	4 (4.4)	24 (26.7)
Quebec	135	74 (54.8)	53 (71.6)	1 (1.4)	1 (1.4)	8 (10.8)	11 (14.9)
New Brunswick	13	7 (53.8)	6 (85.7)	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.3)
Nova Scotia	17	12 (70.6)	5 (41.7)	2 (16.7)	1 (8.3)	1 (8.3)	3 (25.0)
Newfoundland	6	5 (83.3)	4 (80.0)	0 (0.0)	0 (0.0)	1 (20.0)	0 (0.0)
Northwest Territories	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	493	303 (61.5)	178 (58.7)	14 (4.6)	8 (2.6)	26 (8.6)	77 (25.4)

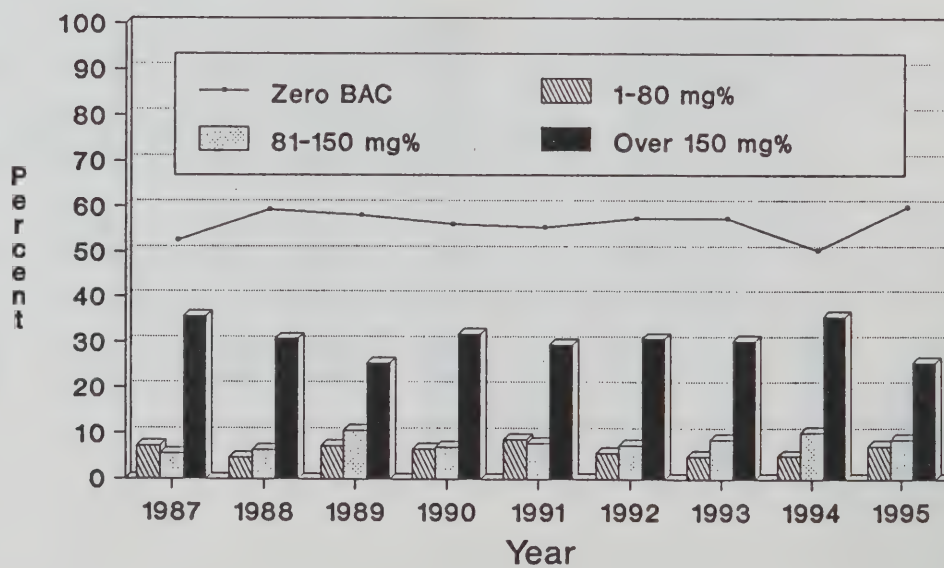
Table 3-10

**Alcohol Use Among Fatally Injured Pedestrians:
Canada, 1987-1995**

Pedestrians Grouped by BAC (mg%)

YEAR	Number of Pedestrians*	Number Tested	Percent % Total	Zero BAC No.	% Tested	1-80 BAC No.	% Tested	81-150 BAC No.	% Tested	> 150 BAC No.	% Tested
1987	760	414	54.5	213	51.4	30	7.3	23	5.6	148	35.7
1988	748	358	47.8	208	58.1	17	4.8	23	6.4	110	30.7
1989	676	368	54.5	209	56.8	27	7.3	39	10.6	93	25.3
1990	683	356	52.1	195	54.8	23	6.5	25	7.0	113	31.7
1991	598	347	58.0	188	54.2	30	8.7	27	7.8	102	29.4
1992	522	296	56.7	166	56.1	17	5.7	22	7.4	91	30.7
1993	551	301	54.6	169	56.1	15	5.0	26	8.6	91	30.2
1994	517	295	57.1	145	49.2	15	5.1	30	10.2	105	35.6
1995	493	303	61.5	178	58.7	22	7.3	26	8.6	77	25.4

Figure 3-19
Trends in Alcohol Use Among
Pedestrian Fatalities: 1987-95



INTRODUCTION TO SECTIONS 4.0 TO 15.0

The following sections of this report provide results on alcohol use by fatally injured drivers for each of the provinces and territories. A common format is used for the presentation in each case. First, general descriptive data on the incidence of alcohol among fatally injured drivers are presented, focusing on differences associated with the age and gender of driver, the type of vehicle being operated, and the type of collision. Second, trends in alcohol use among fatally injured drivers (who died less than 6 hours after being involved in a crash) are examined. More specifically, the trends being examined are based on the percent of fatally injured drivers who have been drinking or the percent at various levels of BAC. The rationale for this approach was described previously (see section 3.2). Briefly, if the proportion of fatally injured drinking drivers is declining, it suggests that the incidence of alcohol-related fatalities is decreasing relatively more than non-alcohol related ones. In other words, it suggests that countermeasures targeted specifically at drinking drivers may be having an impact.

In each of the following sections, the total number of fatally injured drivers shown at the bottom of the tables will differ due to different selection criteria (e.g., drivers of buses are included in the age and gender tables but not the vehicle tables). The selection criteria are identified in each table.

Finally, in many cases the number of victims in various subgroups are extremely small. *Caution must be exercised in drawing conclusions about differences based on only a few cases.* In addition, because of the small number of victims in some jurisdictions, categories or groups of drivers have been collapsed (e.g., a larger age range is displayed -- the two age groups 16 to 19 and 20 to 24 are combined to form a 16 to 24 age category) to ensure that demographic or crash characteristics cannot be used to identify an individual driver and determine their BAC.

4.0 BRITISH COLUMBIA:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in British Columbia.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

4.1 GENERAL FINDINGS: 1995

Tables 4-1 to 4-4 contain the data on which the various figures in this section are based. Table 4-1 contains information on alcohol use by drivers of various age groups; Table 4-2 compares male and female drivers; Table 4-3 provides information on alcohol use by drivers of different types of vehicles; and Table 4-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

4.1.1 Rates of Testing for Alcohol. British Columbia had a high testing rate in 1995, with 86.8% of fatally injured drivers being tested for the presence of alcohol (see Table 4-1).

4.1.2 Incidence of Alcohol. As the totals at the bottom of Table 4-1 indicate, among tested drivers in British Columbia:

- o 48.6% showed no evidence of alcohol;
- o 4.8% had BACs below 50 mg%;

- o 3.2% had BACs from 50 to 80 mg%;
- o 10.8% had BACs from 81 to 150 mg%; and,
- o 32.5% had BACs over 150 mg%.

Thus, 51% of fatally injured drivers in British Columbia had been drinking and most of these had illegal BACs.

o Age. Table 4-1 and Figure 4-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers age 20-25 were the least likely to be sober -- the most likely to have been drinking; only 26% were sober -- 74% of drivers in this age group had been drinking. By contrast, the vast majority of drivers over the age of 55 (87%) showed no evidence of alcohol.

Figure 4-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers age 20-25 and 26-35 each account for 30% of those with BACs below 80 mg%. Drivers age 26-35 account for 35% of fatally injured drinking drivers with BACs over 80 mg%.

o Gender. As shown in Table 4-2 and Figure 4-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were far more likely to have been drinking than female drivers (54% and 36%, respectively). Among those who were drinking, drivers with BACs over the legal limit were far more prevalent in both groups. Among fatally injured male drinking drivers, 85% of males had BACs over 80 mg%; while 79% of females had BACs over the statutory limit.

o Type of Vehicle. Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 4-3 and illustrated in Figures 4-4a and 4-4b. About 49% of fatally injured drivers of automobiles, 60% of trucks/vans and 56% of motorcycle riders were found to have been drinking. Alcohol was not detected in any

of the eight tractor-trailer drivers. Of the fatally injured drinking drivers, 92% who were operating trucks/vans had BACs over the legal limit, as did 85% of automobile drivers and 57% of motorcyclists.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 4-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions. As shown in Figure 4-5, some 65% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 35% in multiple-vehicle collisions. Higher BACs were more characteristic of single-vehicle crashes - 91% of the drinking drivers in single-vehicle crashes had BACs over the legal limit, compared to 70% in multiple-vehicle crashes.

4.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the 9-year period from 1987 to 1995 are shown in Table 4-5. Trends are illustrated in Figure 4-6 which shows changes in the percent of fatally injured drivers who: (1) showed no evidence of alcohol (represented by the line); (2) had BACs below the legal limit (shown by the striped bars); and, (3) had BACs over the legal limit (the solid bars).

As can be seen, the percent of fatally injured drivers with BACs over 80 mg% was relatively constant between 1987 and 1991 and then increased in 1992 as well as 1993. The percent of fatally injured drivers with BACs over 80 mg% dropped substantially from 1993 to 1994 and rose again in 1995 but not to the 1993 level. The percent of fatally injured drivers with low BACs (1-80 mg%) has decreased in the past year. The percent of fatally injured drivers who were sober increased from 1993 to 1994 but then declined in 1995.

Table 4-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(British Columbia, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
<18	12	11 (91.7)	8 (72.7)	0 (0.0)	0 (0.0)	2 (18.2)	1 (9.1)
18-19	15	11 (73.3)	5 (45.5)	1 (9.1)	0 (0.0)	4 (36.4)	1 (9.1)
20-25	52	50 (96.2)	13 (26.0)	4 (8.0)	2 (4.0)	8 (16.0)	23 (46.0)
26-35	71	64 (90.1)	20 (31.3)	2 (3.1)	4 (6.3)	9 (14.1)	29 (45.3)
36-45	52	45 (86.5)	22 (48.9)	3 (6.7)	1 (2.2)	2 (4.4)	17 (37.8)
46-55	32	30 (93.8)	20 (66.7)	0 (0.0)	1 (3.3)	1 (3.3)	8 (26.7)
> 55	53	38 (71.7)	33 (86.8)	2 (5.3)	0 (0.0)	1 (2.6)	2 (5.3)
TOTAL	287	249 (86.8)	121 (48.6)	12 (4.8)	8 (3.2)	27 (10.8)	81 (32.5)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 4-1
Alcohol Use and Age of Driver
British Columbia, 1995

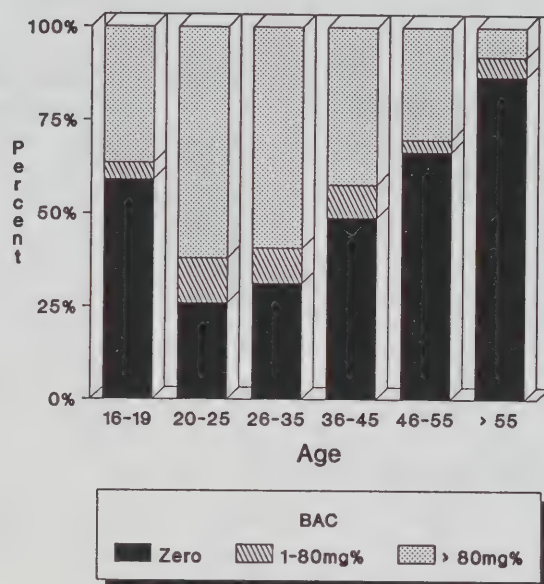


Figure 4-2
Proportion of Drinking Drivers by Age
British Columbia, 1995

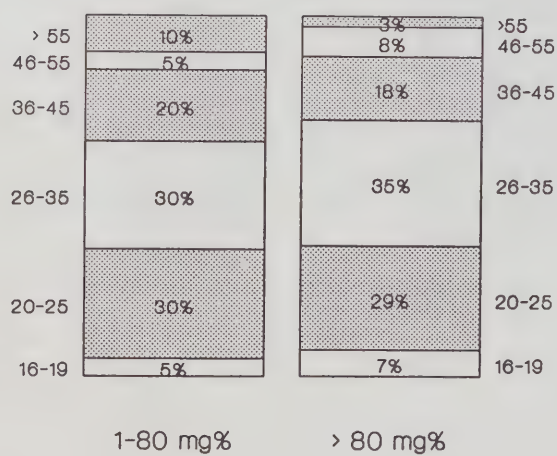


Table 4-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(British Columbia, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	239	210 (87.9)	96 (45.7)	11 (5.2)	6 (2.9)	24 (11.4)	73 (34.8)
FEMALE	48	39 (81.3)	25 (64.1)	1 (2.6)	2 (5.1)	3 (7.7)	8 (20.5)
TOTAL	287	249 (86.8)	121 (48.6)	12 (4.8)	8 (3.2)	27 (10.8)	81 (32.5)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 4-3
Alcohol Use Among Male and Female
Drivers: British Columbia, 1995

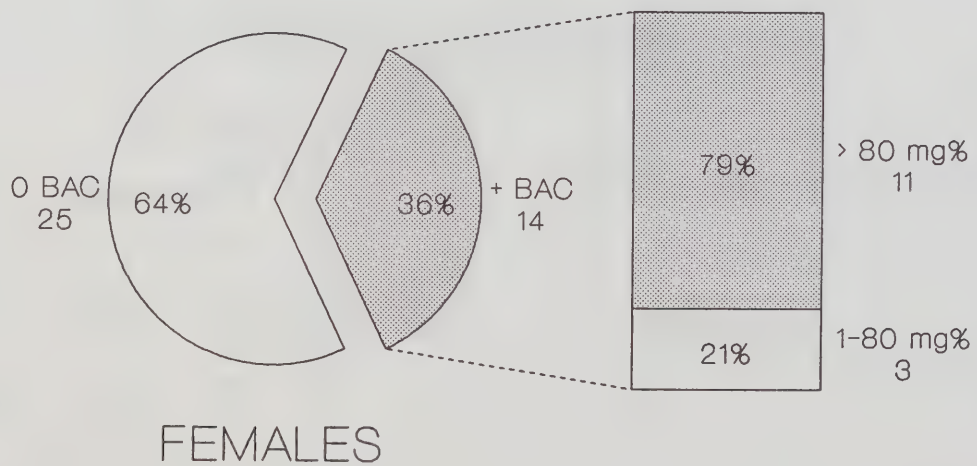
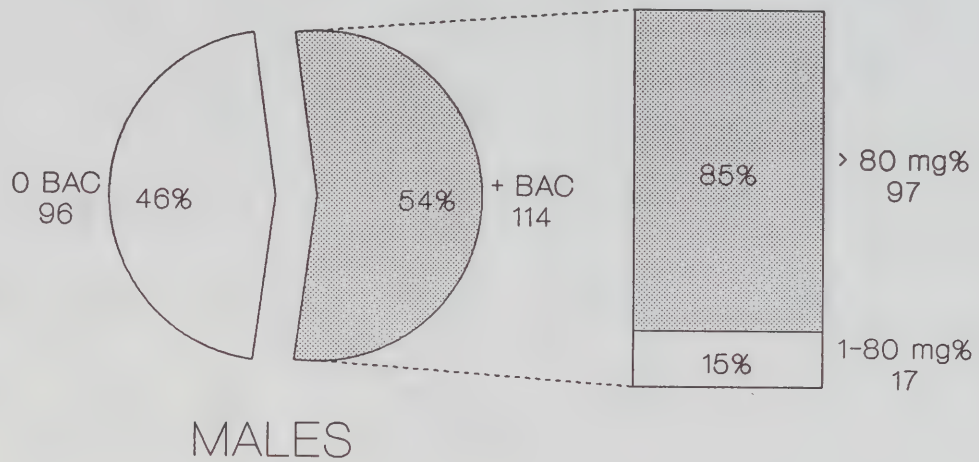


Table 4-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	162	136 (84.0)	70 (51.5)	5 (3.7)	5 (3.7)	13 (9.6)	43 (31.6)
TRUCK-VAN	90	80 (88.9)	32 (40.0)	3 (3.8)	1 (1.3)	13 (16.3)	31 (38.8)
MOTORCYCLE	25	25 (100.0)	11 (44.0)	4 (16.0)	2 (8.0)	1 (4.0)	7 (28.0)
TRACTOR- TRAILER	10	8 (80.0)	8 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	287	249 (86.8)	121 (48.6)	12 (4.8)	8 (3.2)	27 (10.8)	81 (32.5)

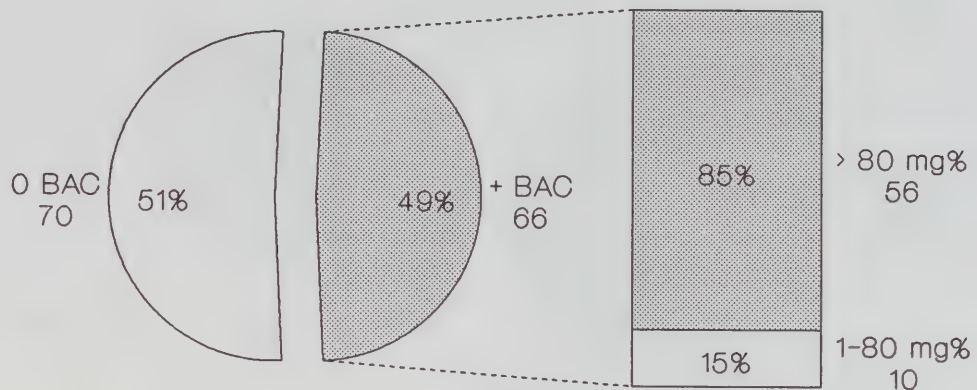
Table 4-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

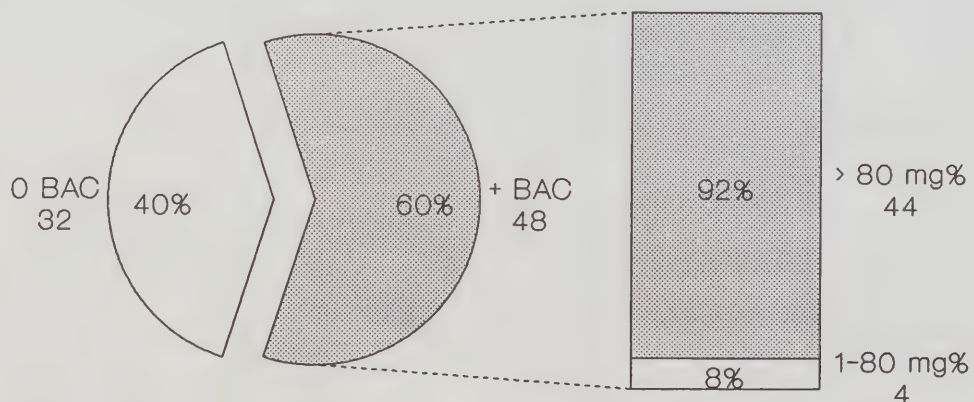
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	155	136 (87.7)	48 (35.3)	3 (2.2)	5 (3.7)	24 (17.6)	56 (41.2)
MULTIPLE- VEHICLE	132	113 (85.6)	73 (64.6)	9 (8.0)	3 (2.7)	3 (2.7)	25 (22.1)
TOTAL	287	249 (86.8)	121 (48.6)	12 (4.8)	8 (3.2)	27 (10.8)	81 (32.5)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 4-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: British Columbia 1995

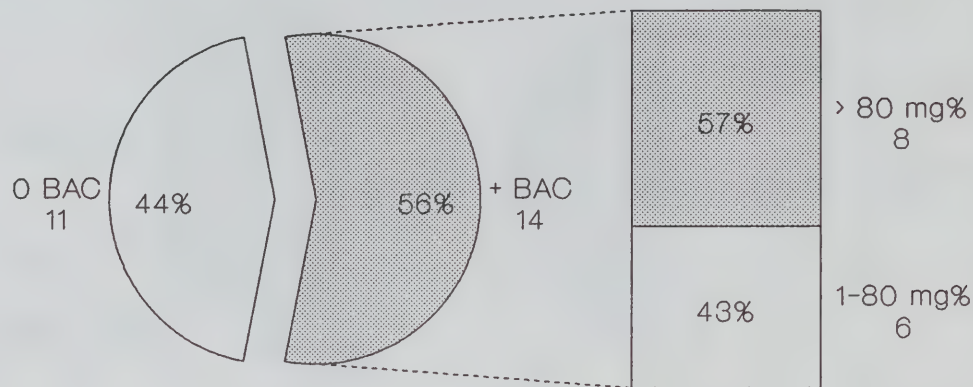


AUTOMOBILE DRIVERS

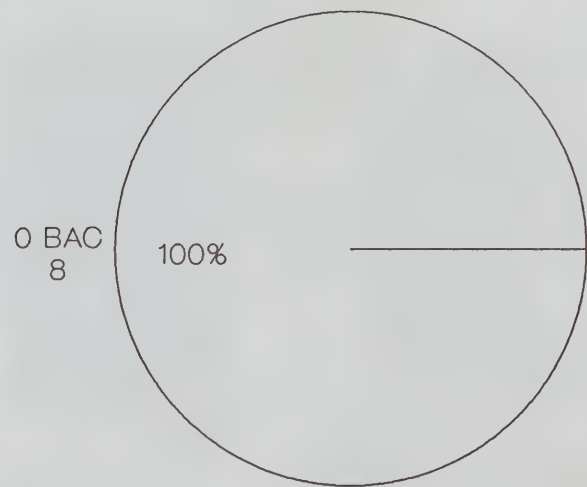


TRUCK/VAN DRIVERS

Figure 4-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: British Columbia 1995



MOTORCYCLE RIDERS



TRACTOR-TRAILER DRIVERS

Figure 4-5
Alcohol Use Among Drivers: Type of
Collision, British Columbia, 1995

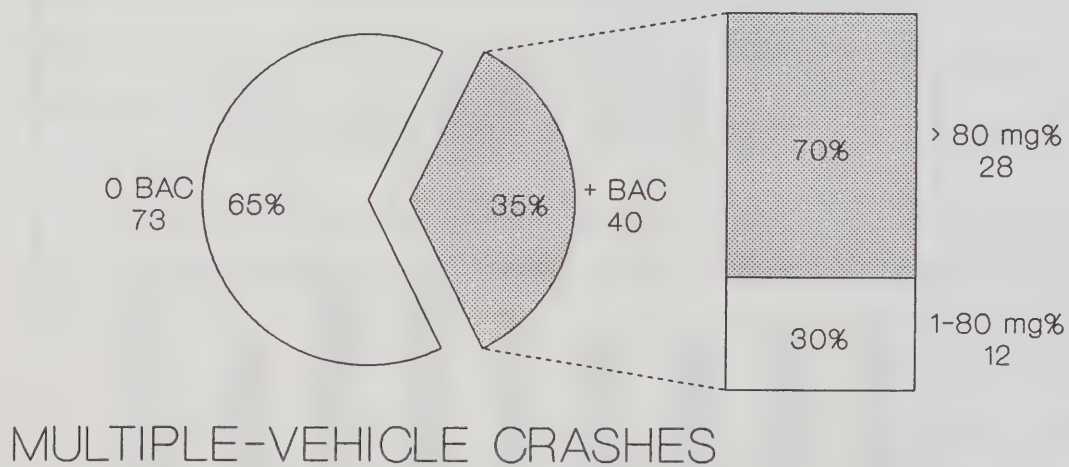
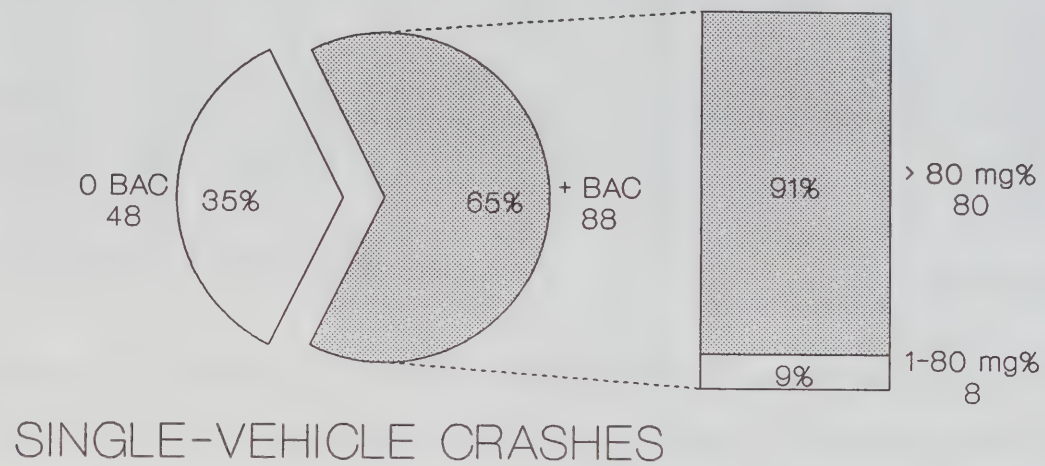


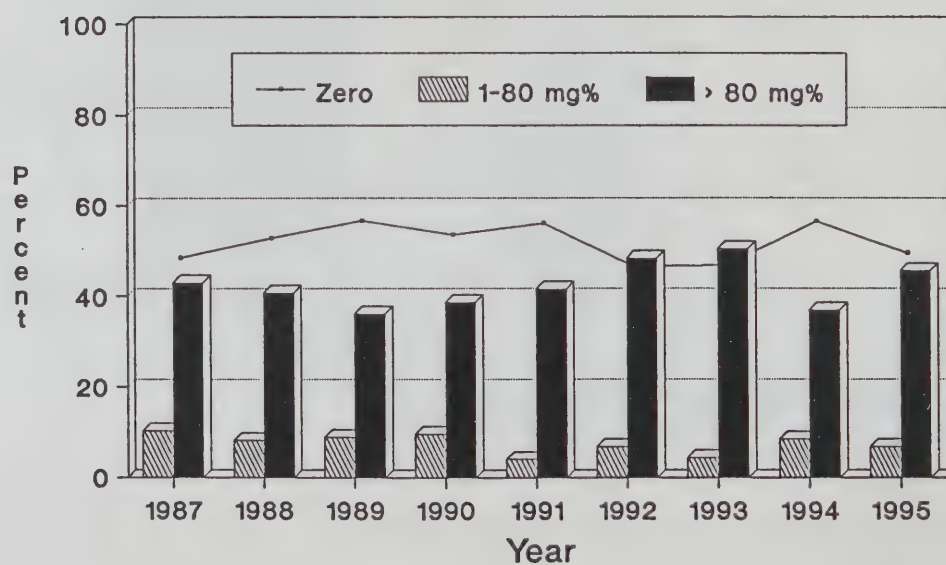
Table 4-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in British Columbia

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	Drivers Grouped by BAC (mg%)				
					(% Tested)	1 - 80	(% Tested)	> 80	(% Tested)
1987	267	265	99.3	124	46.8	27	10.2	114	43.0
1988	284	270	95.0	138	51.1	22	8.1	110	40.7
1989	256	249	97.3	137	55.0	22	8.8	90	36.1
1990	288	282	97.9	146	51.8	27	9.6	109	38.6
1991	252	248	98.4	135	54.4	10	4.0	103	41.6
1992	233	223	95.7	100	44.8	15	6.7	108	48.4
1993	232	224	96.6	101	45.1	10	4.4	113	50.4
1994	260	252	96.9	138	54.8	21	8.4	93	36.9
1995	238	225	94.5	107	47.6	16	7.1	102	45.3

* dying in less than six hours.

Figure 4-6
Trends in Alcohol Use Among
Driver Fatalities: British Columbia



5.0 ALBERTA:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Alberta.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

5.1 GENERAL FINDINGS: 1995

Tables 5-1 to 5-4 contain the data on which the various figures in this section are based. Table 5-1 contains information on alcohol use by drivers of various age groups; Table 5-2 compares male and female drivers; Table 5-3 provides information on alcohol use by drivers of different types of vehicles; and Table 5-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC levels.

5.1.1 Rates of Testing for Alcohol. Alberta had a very high testing rate in 1995, with 95.6% of fatally injured drivers being tested for the presence of alcohol (see Table 5-1).

5.1.2 Incidence of Alcohol. As the totals at the bottom of Table 5-1 indicate, among tested drivers in Alberta:

- o 65.6% showed no evidence of alcohol;
- o 2.8% had BACs below 50 mg%;

- o 1.9% had BACs from 50 to 80 mg%;
- o 7.0% had BACs from 81 to 150 mg%; and,
- o 22.8% had BACs over 150 mg%.

Thus, 34% of fatally injured drivers in Alberta had been drinking and most of these had illegal BACs.

o Age. Table 5-1 and Figure 5-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers age 20-25 were the least likely to be sober and the most likely to have been drinking: 47% of drivers age 20-25 were sober; 53% had been drinking. By contrast, a large majority of drivers (94%) over the age of 55 showed no evidence of alcohol.

Figure 5-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers age 20-25 account for 40% of the drinking drivers with BACs under the legal limit. Drivers age 26-35 account for 31% of those with BACs over 80 mg%.

o Gender. As shown in Table 5-2 and Figure 5-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were more likely to have been drinking than female drivers (36% and 30%, respectively). Among those who were drinking, drivers with BACs over the legal limit were far more prevalent in both groups. Among fatally injured drinking drivers, 87% of the males had BACs over 80 mg%; and 86% of the females had BACs over the statutory limit.

o Type of Vehicle. Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 5-3 and illustrated in Figures 5-4a and 5-4b. Some 29% of fatally injured drivers of automobiles were found to have been drinking. Alcohol was more often detected in operators of trucks/vans (40%) and motorcycles (53%). None of the four tractor-trailer drivers had been drinking. Of the fatally injured drinking

motorcyclists, 75% had BACs over the legal limit as did 91% of automobile drivers and 85% of truck/van drivers.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 5-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions. As shown in Figure 5-5, some 59% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 14% in multiple-vehicle collisions. Higher BACs were somewhat more characteristic of single-vehicle crashes -- 88% of the drinking drivers in single-vehicle crashes had BACs over the legal limit, compared to 82% in multiple-vehicle crashes.

5.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the nine-year period from 1987-1995 are shown in Table 5-5. Trends are illustrated in Figure 5-6 which shows changes in the percent of fatally injured drivers who: (1) showed no evidence of alcohol (represented by the line); (2) had BACs below the legal limit (shown by the striped bars); and (3) had BACs over the legal limit (the solid bars).

Since 1987, the percent of fatally injured drivers with BACs over the legal limit has generally declined and the percent of fatally injured drivers who were sober has generally increased, reaching a high of 67% in 1995. Since 1992, the percent of drivers with BACs from 1-80 mg% has decreased.

Table 5-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Alberta, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
< 16	4	4 (100.0)	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
16-17	6	5 (83.3)	3 (60.0)	0 (0.0)	1 (20.0)	1 (20.0)	0 (0.0)
18-19	21	21 (100.0)	14 (66.7)	0 (0.0)	0 (0.0)	2 (9.5)	5 (23.8)
20-25	37	36 (97.3)	17 (47.2)	3 (8.3)	1 (2.8)	2 (5.6)	13 (36.1)
26-35	51	48 (94.1)	27 (56.3)	1 (2.1)	0 (0.0)	6 (12.5)	14 (29.2)
36-45	45	45 (100.0)	26 (57.8)	0 (0.0)	2 (4.4)	2 (4.4)	15 (33.3)
46-55	21	21 (100.0)	17 (81.0)	2 (9.5)	0 (0.0)	1 (4.8)	1 (4.8)
> 55	40	35 (87.5)	33 (94.3)	0 (0.0)	0 (0.0)	1 (2.9)	1 (2.9)
TOTAL	225	215 (95.6)	141 (65.6)	6 (2.8)	4 (1.9)	15 (7.0)	49 (22.8)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 5-1
Alcohol Use and Age of Driver
Alberta, 1995

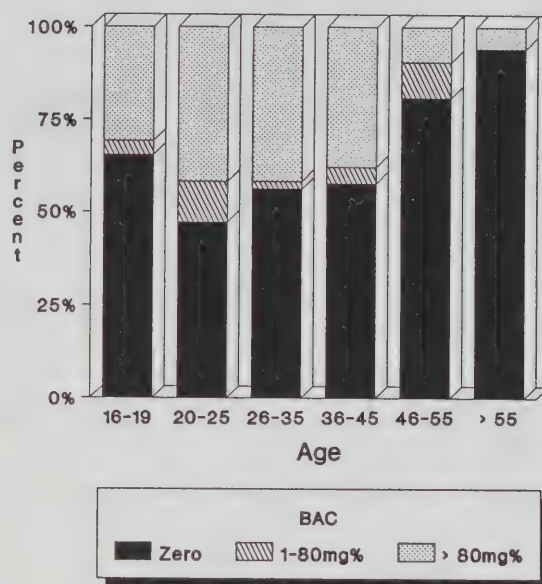


Figure 5-2
Proportion of Drinking Drivers by Age
Alberta, 1995

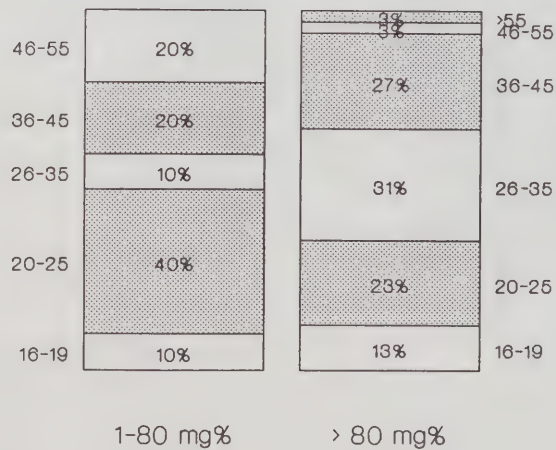


Table 5-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Alberta, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	177	169 (95.5)	109 (64.5)	6 (3.6)	2 (1.2)	11 (6.5)	41 (24.3)
FEMALE	48	46 (95.8)	32 (69.6)	0 (0.0)	2 (4.3)	4 (8.7)	8 (17.4)
TOTAL	225	215 (95.6)	141 (65.6)	6 (2.8)	4 (1.9)	15 (7.0)	49 (22.8)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 5-3
Alcohol Use Among Male and Female
Drivers: Alberta, 1995

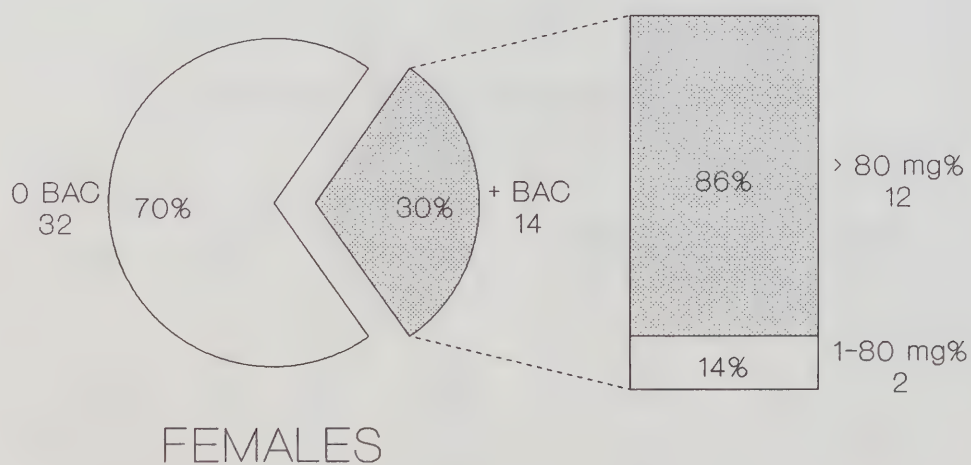
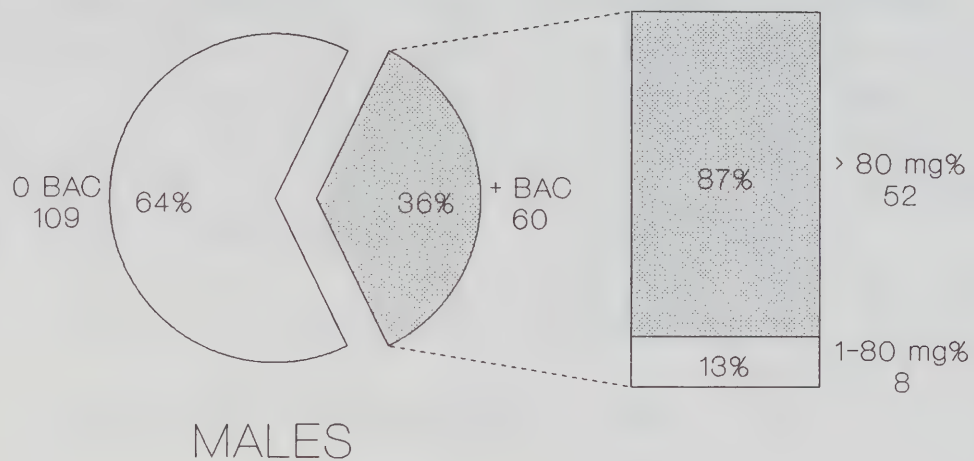


Table 5-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	119	114 (95.8)	81 (71.1)	1 (0.9)	2 (1.8)	5 (4.4)	25 (21.9)
TRUCK-VAN	87	82 (94.3)	49 (59.8)	4 (4.9)	1 (1.2)	7 (8.5)	21 (25.6)
MOTORCYCLE	15	15 (100.0)	7 (46.7)	1 (6.7)	1 (6.7)	3 (20.0)	3 (20.0)
TRACTOR- TRAILER	4	4 (100.0)	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	225	215 (95.6)	141 (65.6)	6 (2.8)	4 (1.9)	15 (7.0)	49 (22.8)

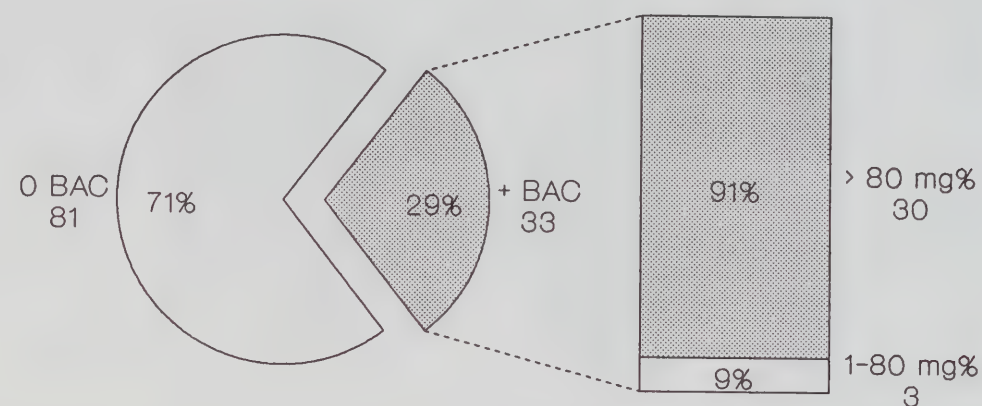
Table 5-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

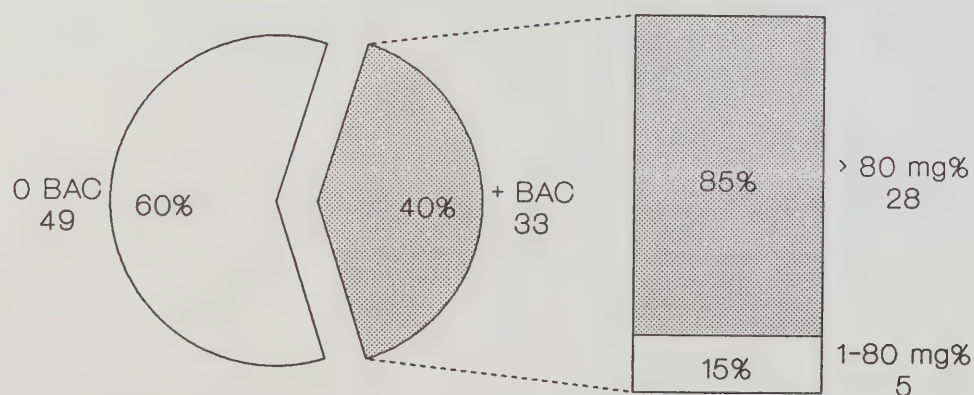
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	100	96 (96.0)	39 (40.6)	4 (4.2)	3 (3.1)	12 (12.5)	38 (39.6)
MULTIPLE- VEHICLE	125	119 (95.2)	102 (85.7)	2 (1.7)	1 (0.8)	3 (2.5)	11 (9.2)
TOTAL	225	215 (95.6)	141 (65.6)	6 (2.8)	4 (1.9)	15 (7.0)	49 (22.8)

* Excludes operators of bicycles, snowmobiles, and farm tractors, and other non-highway vehicles.

Figure 5-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: Alberta, 1995

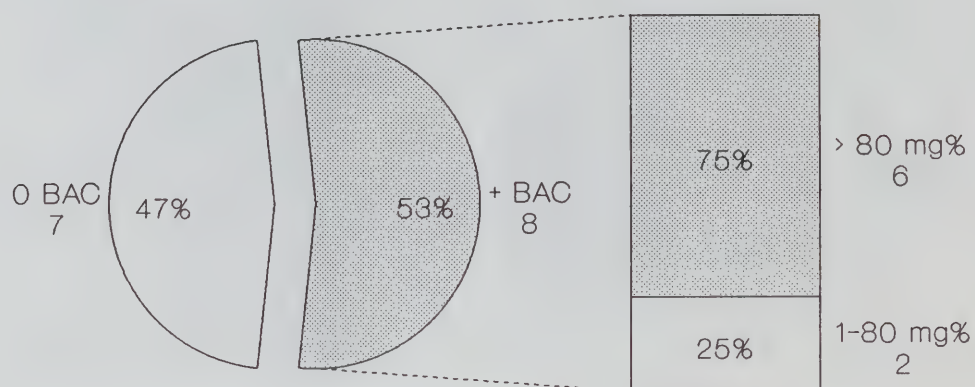


AUTOMOBILE DRIVERS

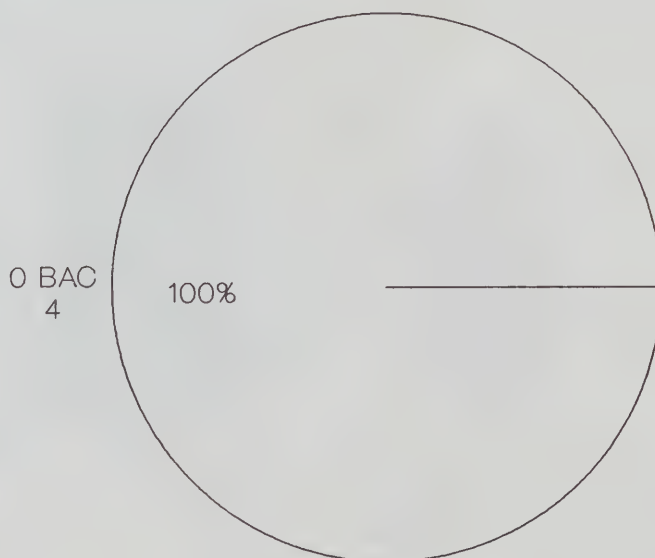


TRUCK/VAN DRIVERS

Figure 5-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: Alberta, 1995

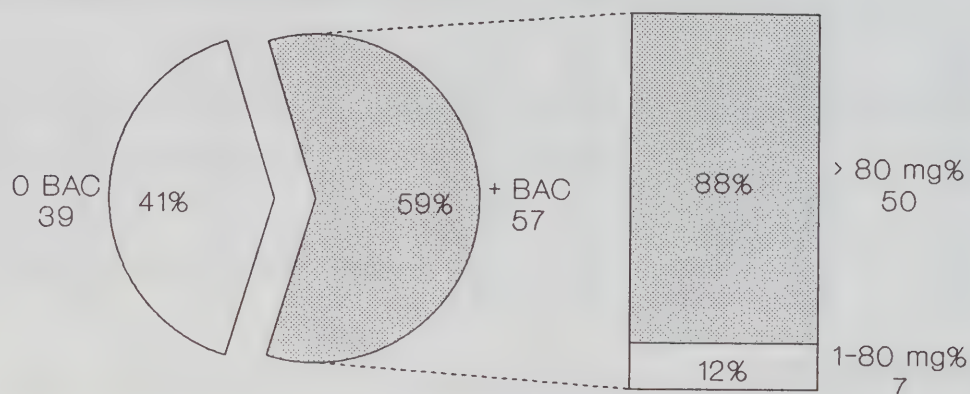


MOTORCYCLE RIDERS

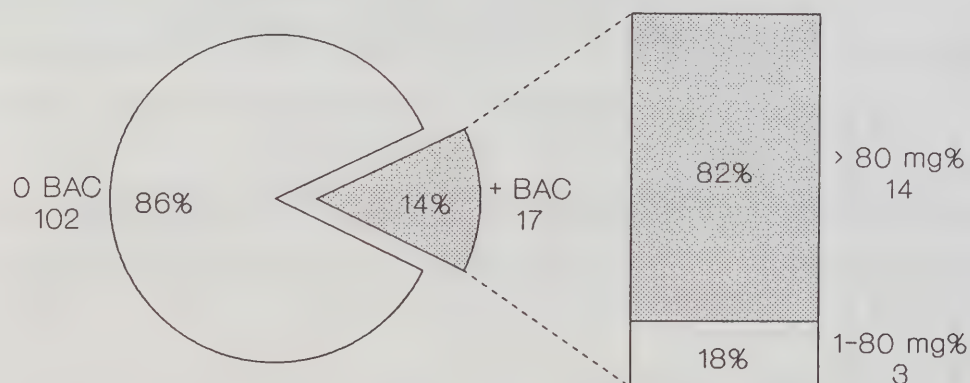


TRACTOR-TRAILER DRIVERS

Figure 5-5
Alcohol Use Among Drivers: Type of
Collision, Alberta, 1995



SINGLE-VEHICLE CRASHES



MULTIPLE-VEHICLE CRASHES

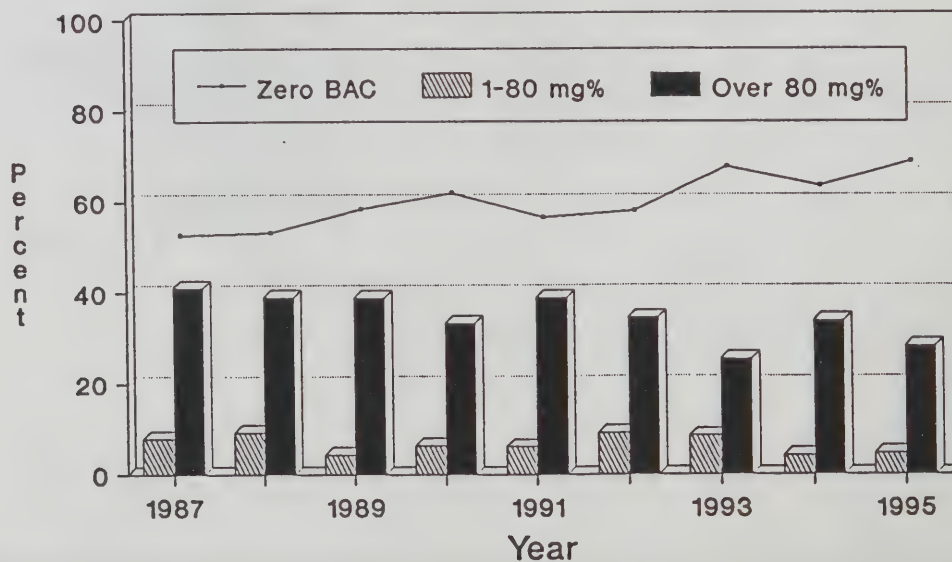
Table 5-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Alberta

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Drivers Grouped by BAC (mg%)					
				Zero	(% Tested)	1 - 80	(% Tested)	> 80	(% Tested)
1987	265	253	95.5	129	51.0	20	7.9	104	41.1
1988	236	215	91.1	111	51.6	20	9.3	84	39.1
1989	235	229	97.4	130	56.8	10	4.4	89	38.9
1990	195	189	96.9	114	60.3	12	6.3	63	33.3
1991	192	180	93.8	99	55.0	11	6.1	70	38.9
1992	171	165	96.5	93	56.4	15	9.1	57	34.5
1993	185	177	95.7	117	66.1	15	8.5	45	25.4
1994	194	189	97.4	117	61.9	8	4.2	64	33.9
1995	201	195	97.0	131	67.2	9	4.6	55	28.2

* dying in less than six hours.

Figure 5-6
Trends in Alcohol Use Among
Driver Fatalities: Alberta, 1987-95



6.0 SASKATCHEWAN:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Saskatchewan.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

6.1 GENERAL FINDINGS: 1995

Tables 6-1 to 6-4 contain the data on which the various figures in this section are based. Table 6-1 contains information on alcohol use by drivers of various age groups; Table 6-2 compares male and female drivers; Table 6-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 6-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

6.1.1 Rates of Testing for Alcohol. Saskatchewan had a very high testing rate in 1995, with 97.5% of fatally injured drivers being tested for the presence of alcohol (see Table 6-1).

6.1.2 Incidence of Alcohol. As the totals at the bottom of Table 6-1 indicate, among tested drivers in Saskatchewan:

- o 53.2% showed no evidence of alcohol;
- o 3.8% had BACs below 50 mg%;

- o 3.8% had BACs from 50 to 80 mg%;
- o 5.1% had BACs from 81 to 150 mg%; and,
- o 34.2% had BACs over 150 mg%.

Thus, 47% of fatally injured drivers in Saskatchewan had been drinking and most of these had illegal BACs.

o *Age.* Table 6-1 and Figure 6-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers age 36-45 were the most likely to have been drinking -- 77% of drivers in this age group had been drinking; only 23% were sober. By contrast, the majority of drivers in three age groups showed no evidence of alcohol. In both the 16-19 and 26-35 age groups, 64% of tested drivers were sober as were 65% of those over age 55.

Figure 6-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. Drivers age 20-25 accounted for 33% of all drinking drivers with BACs of 1-80 mg%. Among legally impaired drivers, those in the 36-45 age group accounted for 29%.

o *Gender.* As shown in Table 6-2 and Figure 6-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were more likely to have been drinking than female drivers (50% and 33%, respectively). Among those who were drinking, drivers with BACs over the legal limit were slightly more prevalent among males than females. Among fatally injured male drinking drivers, 84% had BACs over 80 mg%. Only five females were positive for alcohol; four of these drinking drivers (80%) had BACs over the statutory limit.

o *Type of Vehicle.* Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 6-3 and illustrated in Figures 6-4a and 6-4b. About

44% of fatally injured drivers of automobiles and 50% of drivers of trucks/vans were found to have been drinking. Alcohol was detected in three of the four (75%) motorcycle riders. None of the two fatally injured tractor-trailer drivers had been drinking. Among drinking drivers, 82% of automobile drivers, 88% of truck/van drivers, and two out of three motorcyclists (67%) had BACs over the legal limit.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 6-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions. As shown in Figure 6-5, some 80% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 20% in multiple-vehicle collisions. Higher BACs were more characteristic of single-vehicle crashes -- 89% of the drinking drivers in single-vehicle crashes had BACs over the legal limit, compared to only 67% in multiple-vehicle crashes.

6.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the nine-year period from 1987-1995 are shown in Table 6-5. Trends are illustrated in Figure 6-6 which shows changes in the percent of fatally injured drivers who: (1) showed no evidence of alcohol (represented by the line); (2) had BACs below the legal limit (shown by the striped bars); and (3) had BACs over the legal limit (the solid bars).

As can be seen, the percent of fatally injured drivers with BACs over the legal limit generally declined from 1987 to 1994, then increased in 1995. The percent of fatally injured drivers with zero BAC increased from 1987 to 1994 and then declined slightly in 1995.

Table 6-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Saskatchewan, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
16-17	5	5 (100.0)	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18-19	9	9 (100.0)	4 (44.4)	0 (0.0)	1 (11.1)	0 (0.0)	4 (44.4)
20-25	14	14 (100.0)	6 (42.9)	2 (14.3)	0 (0.0)	3 (21.4)	3 (21.4)
26-35	15	14 (93.3)	9 (64.3)	0 (0.0)	1 (7.1)	1 (7.1)	3 (21.4)
36-45	13	13 (100.0)	3 (23.1)	1 (7.7)	0 (0.0)	0 (0.0)	9 (69.2)
46-55	4	4 (100.0)	2 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (50.0)
> 55	21	20 (95.2)	13 (65.0)	0 (0.0)	1 (5.0)	0 (0.0)	6 (30.0)
TOTAL	81	79 (97.5)	42 (53.2)	3 (3.8)	3 (3.8)	4 (5.1)	27 (34.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 6-1
Alcohol Use and Age of Driver
Saskatchewan, 1995

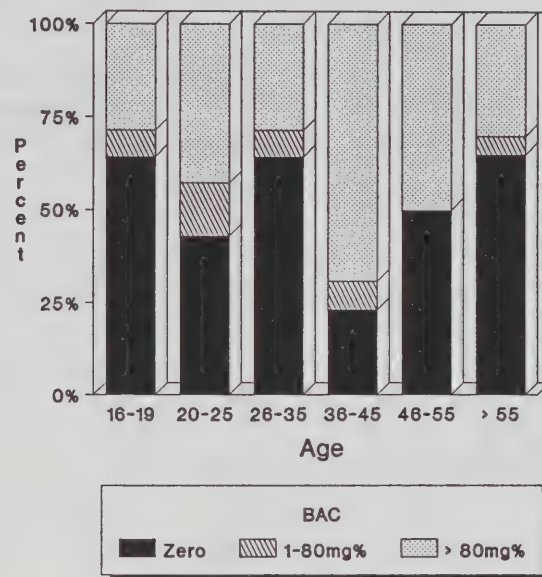


Figure 6-2
Proportion of Drinking Drivers by Age
Saskatchewan, 1995

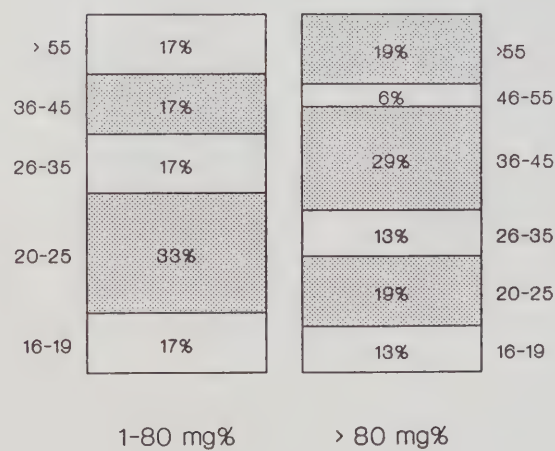


Table 6-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Saskatchewan, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	65	64 (98.5)	32 (50.0)	3 (4.7)	2 (3.1)	4 (6.3)	23 (35.9)
FEMALE	16	15 (93.8)	10 (66.7)	0 (0.0)	1 (6.7)	0 (0.0)	4 (26.7)
TOTAL	81	79 (97.5)	42 (53.2)	3 (3.8)	3 (3.8)	4 (5.1)	27 (34.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 6-3
Alcohol Use Among Male and Female
Drivers: Saskatchewan, 1995

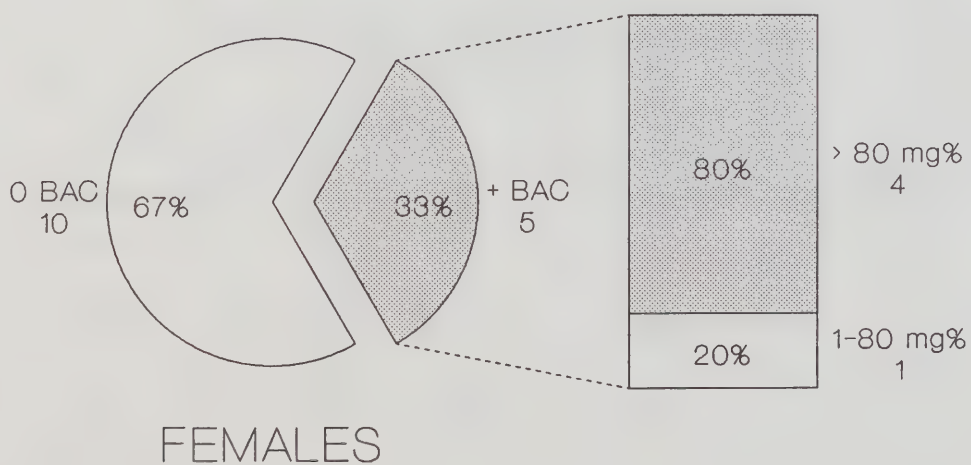
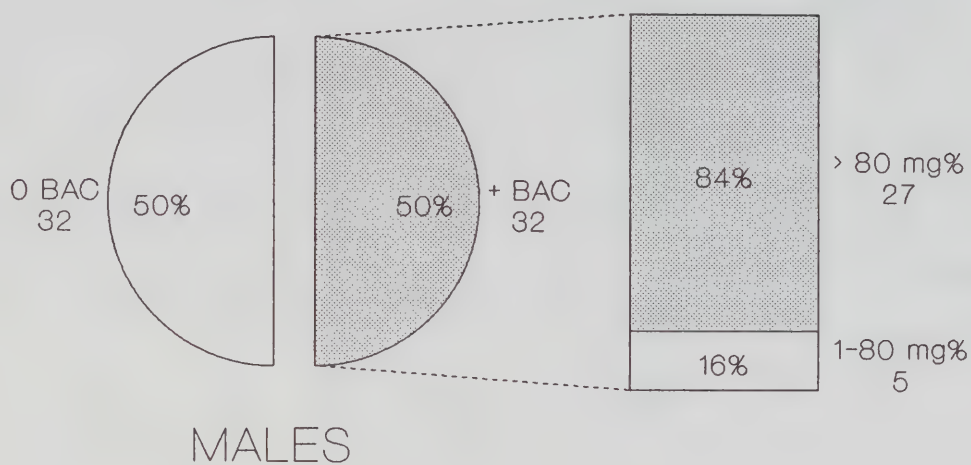


Table 6-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	40	39 (97.5)	22 (56.4)	1 (2.6)	2 (5.1)	3 (7.7)	11 (28.2)
TRUCK-VAN	34	34 (100.0)	17 (50.0)	1 (2.9)	1 (2.9)	1 (2.9)	14 (41.2)
MOTORCYCLE	5	4 (80.0)	1 (25.0)	1 (25.0)	0 (0.0)	0 (0.0)	2 (50.0)
TRACTOR- TRAILER	2	2 (100.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	81	79 (97.5)	42 (53.2)	3 (3.8)	3 (3.8)	4 (5.1)	27 (34.2)

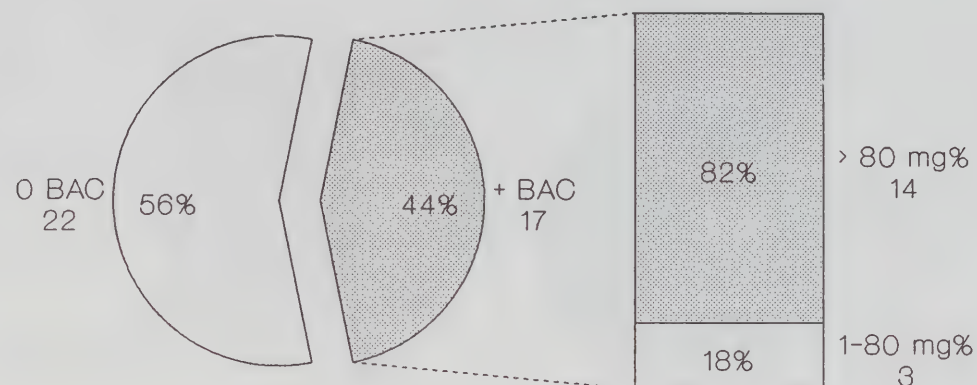
Table 6-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

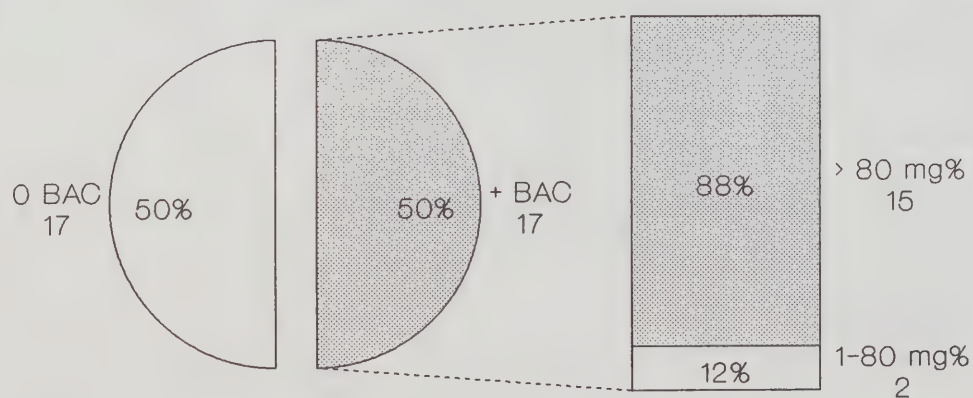
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	36	35 (97.2)	7 (20.0)	1 (2.9)	2 (5.7)	3 (8.6)	22 (62.9)
MULTIPLE- VEHICLE	45	44 (97.8)	35 (79.5)	2 (4.5)	1 (2.3)	1 (2.3)	5 (11.4)
TOTAL	81	79 (97.5)	42 (53.2)	3 (3.8)	3 (3.8)	4 (5.1)	27 (34.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 6-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: Saskatchewan, 1995

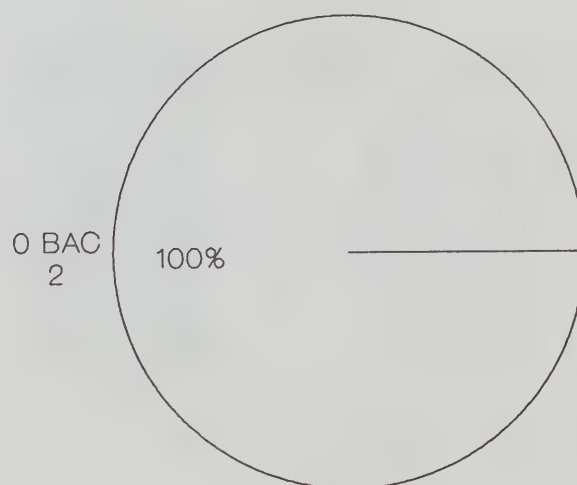
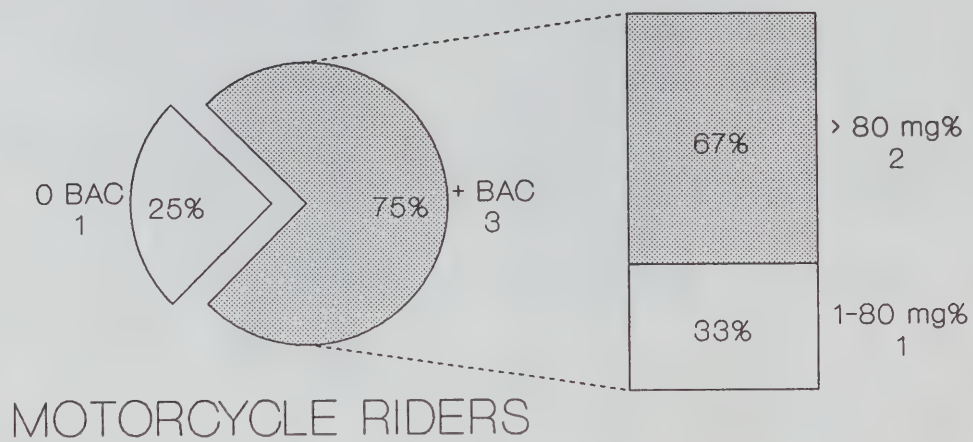


AUTOMOBILE DRIVERS



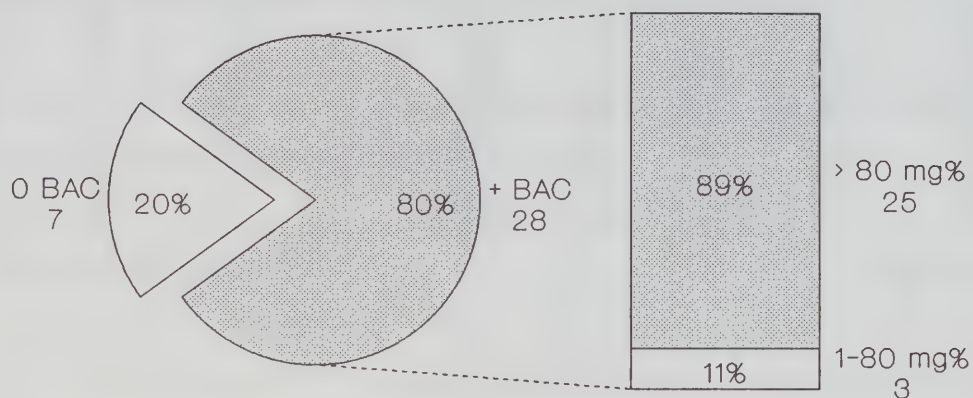
TRUCK/VAN DRIVERS

Figure 6-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: Saskatchewan, 1995

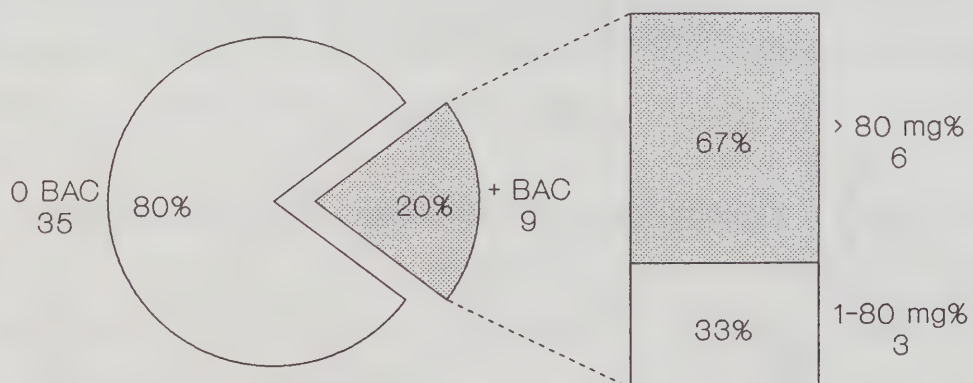


TRACTOR-TRAILER DRIVERS

Figure 6-5
Alcohol Use Among Drivers: Type of
Collision, Saskatchewan, 1995



SINGLE-VEHICLE CRASHES



MULTIPLE-VEHICLE CRASHES

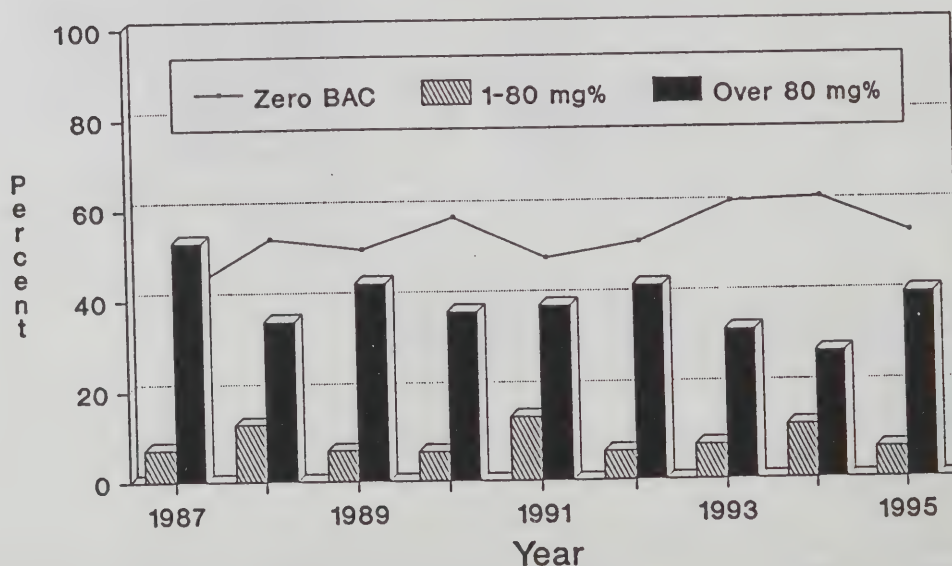
Table 6-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Saskatchewan

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	Drivers Grouped by BAC (mg%)				
					(% Tested)	1 - 80	(% Tested)	> 80	(% Tested)
1987	94	85	90.4	34	40.0	6	7.1	45	52.9
1988	81	79	97.5	41	51.9	10	12.7	28	35.4
1989	110	103	93.6	51	49.5	7	6.8	45	43.7
1990	80	78	97.5	44	56.4	5	6.4	29	37.2
1991	83	78	94.0	37	47.4	11	14.1	30	38.5
1992	66	63	95.5	32	50.8	4	6.3	27	42.9
1993	80	79	98.8	47	59.5	6	7.6	26	32.9
1994	68	68	100.0	41	60.3	8	11.8	19	27.9
1995	77	76	98.7	40	52.6	5	6.6	31	40.8

* dying in less than six hours.

Figure 6-6
Trends in Alcohol Use Among Driver
Fatalities: Saskatchewan, 1987-95



7.0 MANITOBA:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Manitoba.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

7.1 GENERAL FINDINGS: 1995

Tables 7-1 to 7-4 contain the data on which the various figures in this section are based. Table 7-1 contains information on alcohol use by drivers of various age groups; Table 7-2 compares male and female drivers; Table 7-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 7-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

7.1.1 Rates of Testing for Alcohol. Manitoba had a testing rate in 1995 that was slightly below the Canadian average. Seventy-seven percent of fatally injured drivers were tested for the presence of alcohol (see Table 7-1) in Manitoba compared to an average testing rate of 84% for Canada.

7.1.2 Incidence of Alcohol. As the totals at the bottom of Table 7-1 indicate, among tested drivers in Manitoba:

- o 59.3% showed no evidence of alcohol;

- o 7.4% had BACs from 1 to 49 mg%;
- o 7.4% had BACs from 50 to 80 mg%;
- o 1.9% had BACs from 81 to 150 mg%; and,
- o 24.1% had BACs over 150 mg%.

Thus, 41% of fatally injured drivers in Manitoba had been drinking and most of these had illegal BACs.

o Age. Table 7-1 and Figure 7-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers age 26-35 were the least likely to be sober -- the most likely to have been drinking; only 12.5% were sober and 87.5% of drivers in this age group had been drinking. By contrast, 93% of the fatally injured drivers over age 55 showed no evidence of alcohol.

Figure 7-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers age 20-25 accounted for 50% of those with BACs below 80 mg%. Drivers age 26-35 accounted for 43% of those with BACs over 80 mg%.

o Gender. As shown in Table 7-2, and Figure 7-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were more likely to have been drinking than female drivers (42% and 36%, respectively). However, among fatally injured drinking drivers, 72% of males had BACs over 80 mg% while only one out of four females (25%) had BACs over the statutory limit.

o Type of Vehicle. Data on alcohol use as a function of the *type of vehicle* being operated, is shown in Table 7-3 and illustrated in Figures 7-4a and 7-4b. About 56% of fatally injured drivers of truck/vans and about 30% of automobile drivers were found to have been drinking. Alcohol was detected in three of the four fatally injured

motorcycle riders (75%). High BACs were characteristic of truck/van drivers as all drinking drivers of trucks/vans had BACs over the legal limit. About 67% of drinking motorcyclists had BACs over 80 mg% and only 30% of the drinking automobile drivers did so.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 7-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than in those involved in multiple-vehicle collisions. As shown in Figure 7-5, some 68% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 22% in multiple-vehicle collisions. Of the drinking drivers in single-vehicle crashes, 80% had BACs over the legal limit, compared to only 29% of the drinking drivers in multiple-vehicle crashes.

7.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the nine-year period from 1987-1995 are shown in Table 7-5. Trends are illustrated in Figure 7-6 which shows changes in the percent of fatally injured drivers who: (1) showed no evidence of alcohol (represented by the line); (2) had BACs below the legal limit (given by the striped bar); and (3) had BACs over the legal limit (the solid bars).

As can be seen, the percent of fatally injured drivers with BACs over the legal limit has generally decreased since 1987 to a low of 25% in 1995. Fatally injured drivers who were sober increased from 33% in 1987 to 60% in 1995. And, since 1992, there has been an increase in the proportion of drivers with a BAC between 1-80 mg%.

Table 7-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Manitoba, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
16-17	1	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18-19	3	3 (100.0)	2 (66.7)	1 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)
20-25	13	12 (92.3)	4 (33.3)	1 (8.3)	3 (25.0)	1 (8.3)	3 (25.0)
26-35	9	8 (88.9)	1 (12.5)	1 (12.5)	0 (0.0)	0 (0.0)	6 (75.0)
36-45	12	10 (83.3)	6 (60.0)	0 (0.0)	1 (10.0)	0 (0.0)	3 (30.0)
46-55	7	5 (71.4)	4 (80.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (20.0)
> 55	25	15 (60.0)	14 (93.3)	1 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	70	54 (77.1)	32 (59.3)	4 (7.4)	4 (7.4)	1 (1.9)	13 (24.1)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 7-1
Alcohol Use and Age of Driver
Manitoba, 1995

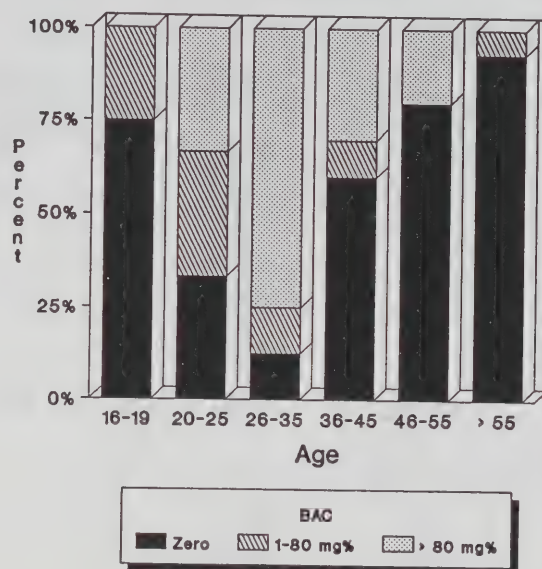


Figure 7-2
Proportion of Drinking Drivers by Age
Manitoba, 1995

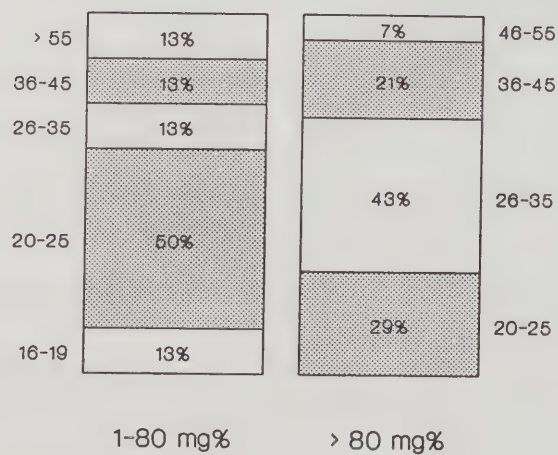


Table 7-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Manitoba, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	55	43 (78.2)	25 (58.1)	2 (4.7)	3 (7.0)	1 (2.3)	12 (27.9)
FEMALE	15	11 (73.3)	7 (63.6)	2 (18.2)	1 (9.1)	0 (0.0)	1 (9.1)
TOTAL	70	54 (77.1)	32 (59.3)	4 (7.4)	4 (7.4)	1 (1.9)	13 (24.1)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 7-3
Alcohol Use Among Male and Female
Drivers: Manitoba, 1995

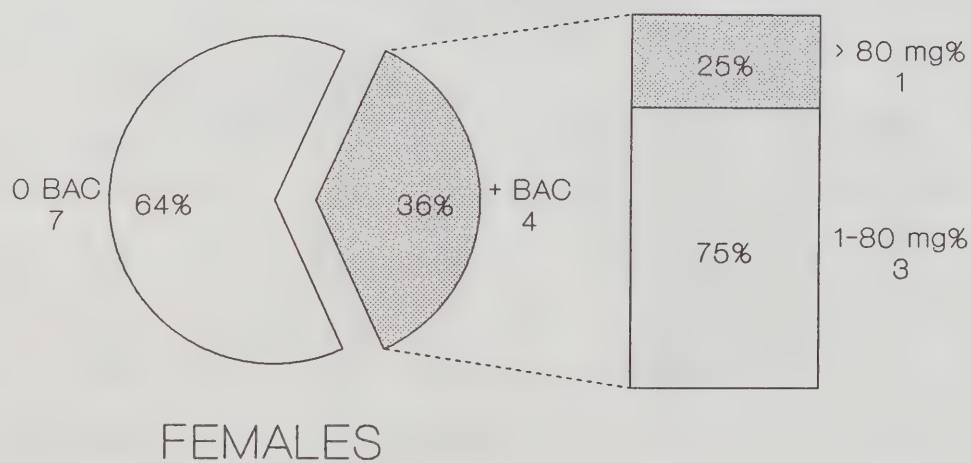
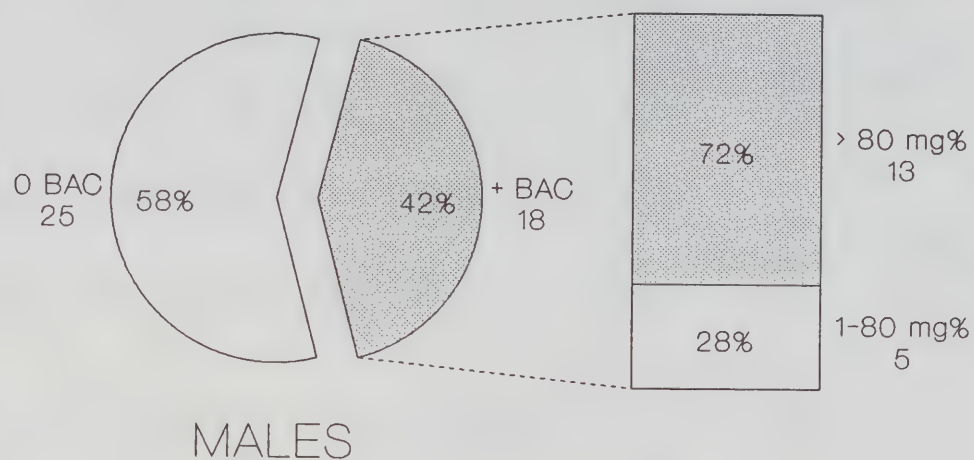


Table 7-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	44	33 (75.0)	23 (69.7)	4 (12.1)	3 (9.1)	0 (0.0)	3 (9.1)
TRUCK-VAN	20	16 (80.0)	7 (43.8)	0 (0.0)	0 (0.0)	1 (6.3)	8 (50.0)
MOTORCYCLE	5	4 (80.0)	1 (25.0)	0 (0.0)	1 (25.0)	0 (0.0)	2 (50.0)
TOTAL	69	53 (76.8)	31 (58.6)	4 (7.5)	4 (7.5)	1 (1.9)	13 (24.5)

Table 7-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	27	22 (81.5)	7 (31.8)	2 (9.1)	1 (4.5)	1 (4.5)	11 (50.0)
MULTIPLE- VEHICLE	43	32 (74.4)	25 (78.1)	2 (6.3)	3 (9.4)	0 (0.0)	2 (6.3)
TOTAL	70	54 (77.1)	32 (59.3)	4 (7.4)	4 (7.4)	1 (1.9)	13 (24.1)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 7-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: Manitoba, 1995

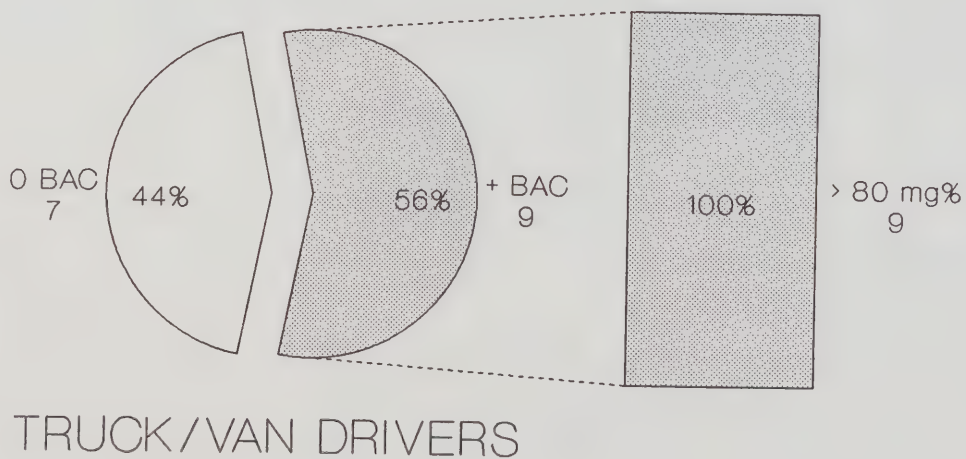
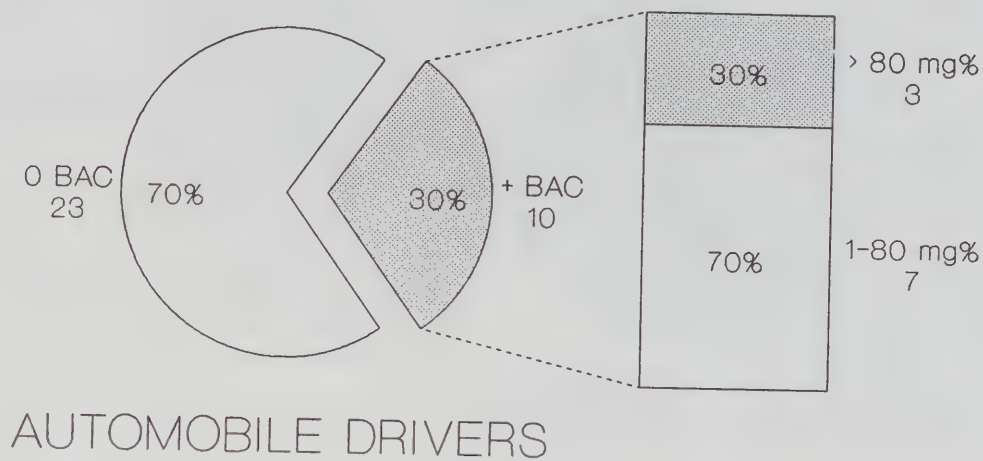
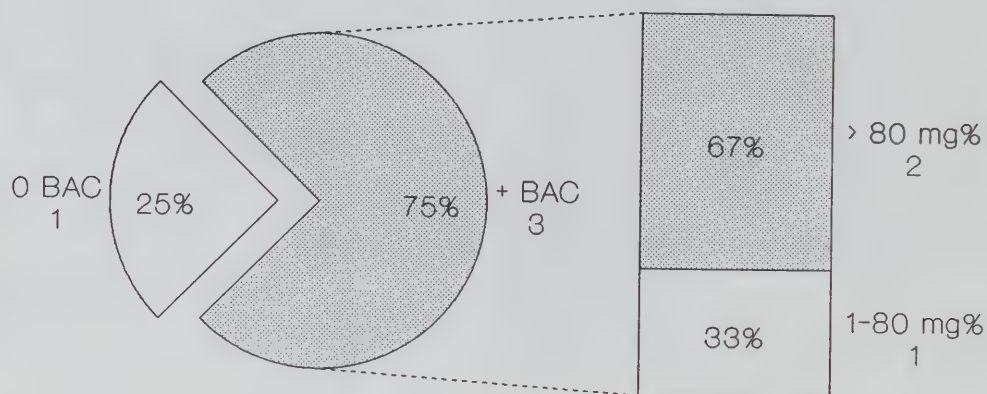
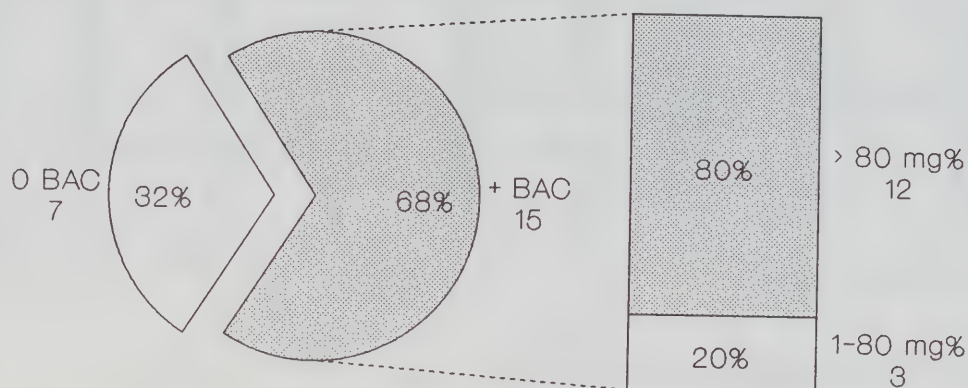


Figure 7-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: Manitoba, 1995

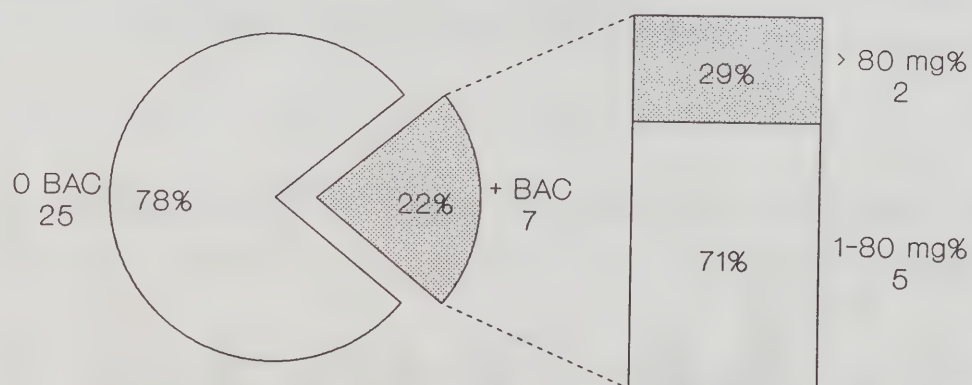


MOTORCYCLE RIDERS

Figure 7-5
Alcohol Use Among Drivers: Type of
Collision, Manitoba, 1995



SINGLE-VEHICLE CRASHES



MULTIPLE-VEHICLE CRASHES

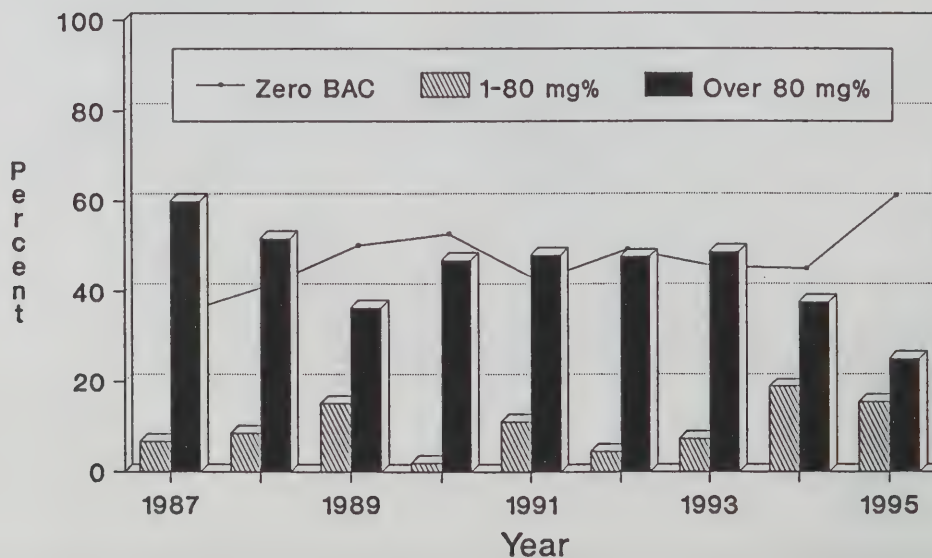
Table 7-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Manitoba

YEAR	Number Of Drivers *	Drivers Tested	(% Total)	Zero	(% Tested)	Drivers Grouped by BAC (mg%)			
						1 - 80	(% Tested)	> 80	(% Tested)
1987	67	60	89.6	20	33.3	4	6.7	36	60.0
1988	64	58	90.6	23	39.7	5	8.6	30	51.7
1989	70	66	94.3	32	48.5	10	15.2	24	36.4
1990	54	49	90.7	25	51.0	1	2.0	23	46.9
1991	63	54	85.7	22	40.7	6	11.1	26	48.1
1992	50	44	88.0	21	47.7	2	4.5	21	47.7
1993	59	41	69.5	18	43.9	3	7.3	20	48.8
1994	57	53	93.0	23	43.4	10	18.9	20	37.7
1995	62	52	83.9	31	59.6	8	15.4	13	25.0

* dying in less than six hours.

Figure 7-6
Trends in Alcohol Use Among
Driver Fatalities: Manitoba, 1987-95



8.0 ONTARIO:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Ontario.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

8.1 GENERAL FINDINGS: 1995

Tables 8-1 to 8-4 contain the raw data on which the various figures in this section are based. Table 8-1 contains information on alcohol use by drivers of various age groups; Table 8-2 compares male and female drivers; Table 8-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 8-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

8.1.1 Rates of Testing for Alcohol. Ontario had a high testing rate in 1995 with 83.3% of fatally injured drivers being tested for the presence of alcohol (see Table 8-1).

8.1.2 Incidence of Alcohol. As the totals at the bottom of Table 8-1 indicate, among tested drivers in Ontario:

- o 58.3% showed no evidence of alcohol;
- o 6.7% had BACs below 50 mg%;
- o 2.3% had BACs from 50 to 80 mg%;

- o 8.0% had BACs from 81 to 150 mg%; and,
- o 24.8% had BACs over 150 mg%.

Thus, 42% of fatally injured drivers in Ontario had been drinking and most of these had illegal BACs.

o *Age.* Table 8-1 and Figure 8-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers aged 20-25 and 26-35 were the least likely to be sober and the most likely to have been drinking; only 46% of drivers in these age groups were sober -- 54% had been drinking. By contrast, the vast majority of drivers over 55 showed no evidence of alcohol (79%).

Figure 8-2 shows the proportion of drinking-drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers age 26-35 account for 26% of all fatally injured drinking drivers with BACs below 80 mg%. Of those with BACs over the legal limit, 33% were in the 26-35 age range.

o *Gender.* As shown in Table 8-2 and Figure 8-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were far more likely to have been drinking than female drivers (46% and 25%, respectively). Among those who were drinking, drivers with BACs over the legal limit were far more prevalent in both groups. Among fatally injured drinking drivers, 79% of both males and females had BACs over 80 mg%.

o *Type of Vehicle.* Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 8-3 and illustrated in Figures 8-4a and 8-4b. About 42% of fatally injured drivers of both automobiles and trucks/vans were found to have been drinking; by comparison, 50% of motorcycle riders were drinking. None of the nine tractor-trailer drivers had been drinking. About 80% of the fatally injured drinking

truck/van drivers, 79% of automobile drivers and 71% of motorcyclists had BACs over the legal limit.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 8-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions. As shown in Figure 8-5, some 65% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 25% in multiple-vehicle collisions. Among drinking drivers, 90% of the drivers in single-vehicle crashes had BACs over the legal limit, compared to only 58% in multiple-vehicle crashes.

8.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the 9-year period from 1987-1995 are shown in Table 8-5. Trends are illustrated in Figure 8-6, which shows changes in the percent of fatally injured drivers who: (1) showed no evidence of alcohol (represented by the line); (2) had BACs below the legal limit (given by the striped bar); and (3) had BACs over the legal limit (the solid bars).

As can be seen, the percent of fatally injured drivers with BACs over the legal limit declined slightly between 1987 and 1989, increased in 1992 and then decreased in 1995. The percent of fatally injured drivers who were sober has gradually increased since 1992.

Table 8-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Ontario, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
< 16	2	2 (100.0)	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
16-17	22	18 (81.8)	15 (83.3)	1 (5.6)	0 (0.0)	1 (5.6)	1 (5.6)
18-19	27	25 (92.6)	14 (56.0)	2 (8.0)	1 (4.0)	3 (12.0)	5 (20.0)
20-25	95	85 (89.5)	39 (45.9)	6 (7.1)	1 (1.2)	20 (23.5)	19 (22.4)
26-35	141	126 (89.4)	58 (46.0)	9 (7.1)	3 (2.4)	11 (8.7)	45 (35.7)
36-45	98	89 (90.8)	42 (47.2)	3 (3.4)	3 (3.4)	6 (6.7)	35 (39.3)
46-55	84	75 (89.3)	54 (72.0)	4 (5.3)	2 (2.7)	1 (1.3)	14 (18.7)
> 55	161	105 (65.2)	83 (79.0)	9 (8.6)	2 (1.9)	0 (0.0)	11 (10.5)
TOTAL	630	525 (83.3)	306 (58.3)	35 (6.7)	12 (2.3)	42 (8.0)	130 (24.8)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 8-1
Alcohol Use and Age of Driver
Ontario, 1995

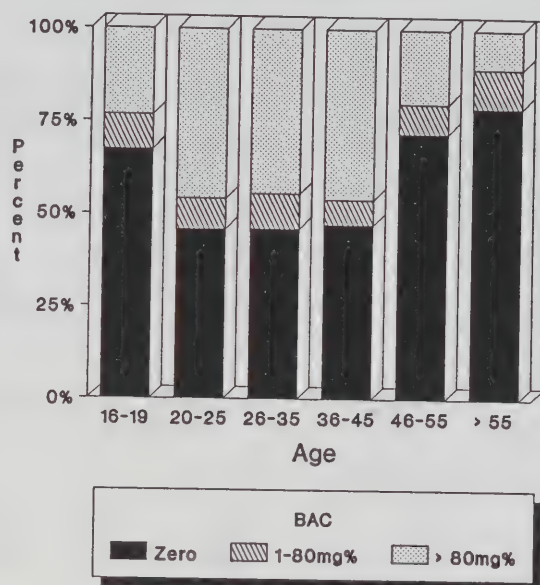


Figure 8-2
Proportion of Drinking Drivers by Age
Ontario, 1995

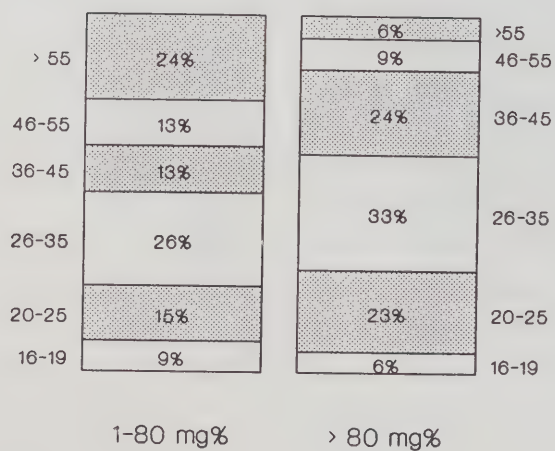


Table 8-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Ontario, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	498	414 (83.1)	223 (53.9)	30 (7.2)	11 (2.7)	34 (8.2)	116 (28.0)
FEMALE	132	111 (84.1)	83 (74.8)	5 (4.5)	1 (0.9)	8 (7.2)	14 (12.6)
TOTAL	630	525 (83.3)	306 (58.3)	35 (6.7)	12 (2.3)	42 (8.0)	130 (24.8)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 8-3
Alcohol Use Among Male and Female
Drivers: Ontario, 1995

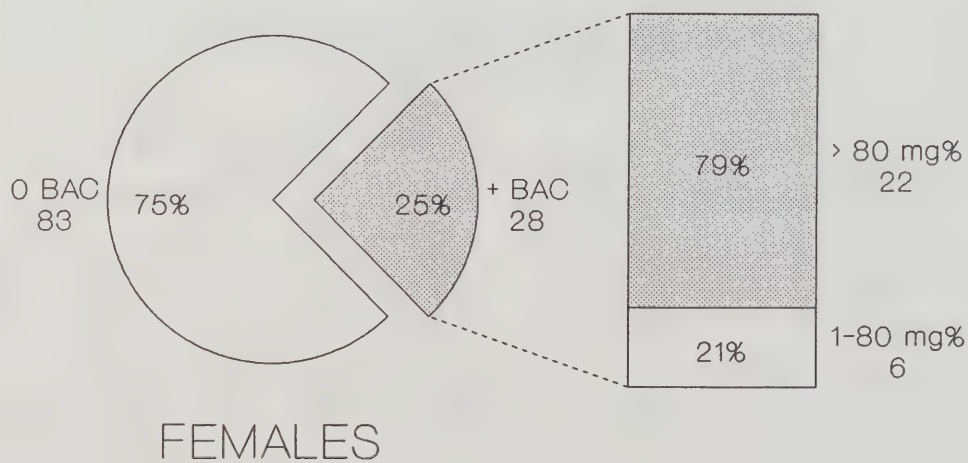
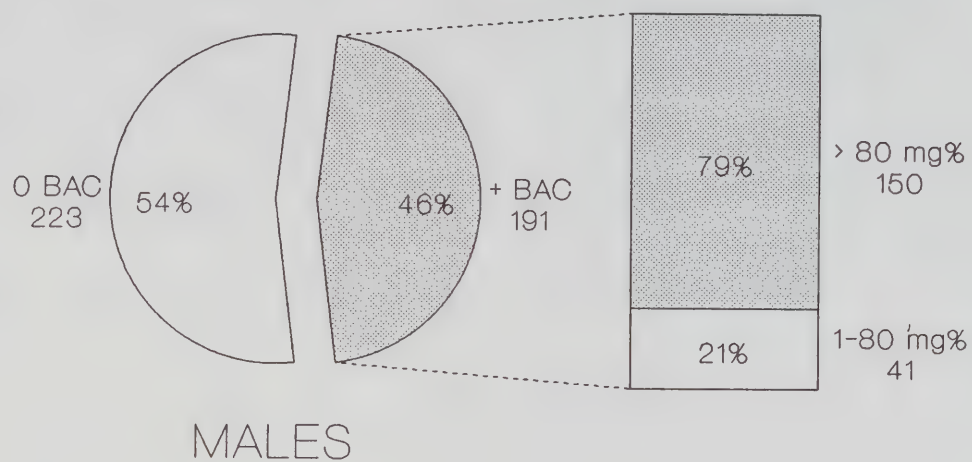


Table 8-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	457	375 (82.1)	218 (58.1)	23 (6.1)	10 (2.7)	34 (9.1)	90 (24.0)
TRUCK-VAN	118	106 (89.8)	61 (57.5)	8 (7.5)	1 (0.9)	6 (5.7)	30 (28.3)
MOTORCYCLE	43	34 (79.1)	17 (50.0)	4 (11.8)	1 (2.9)	2 (5.9)	10 (29.4)
TRACTOR- TRAILER	11	9 (81.8)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	629	524 (83.3)	305 (58.2)	35 (6.7)	12 (2.3)	42 (8.0)	130 (24.8)

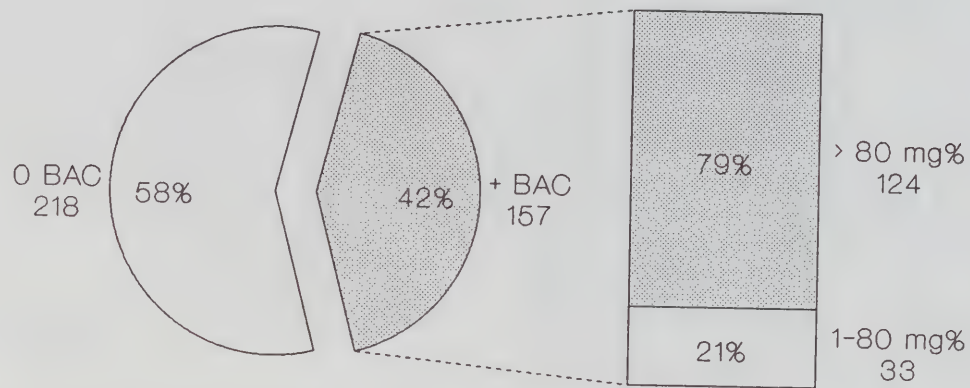
Table 8-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

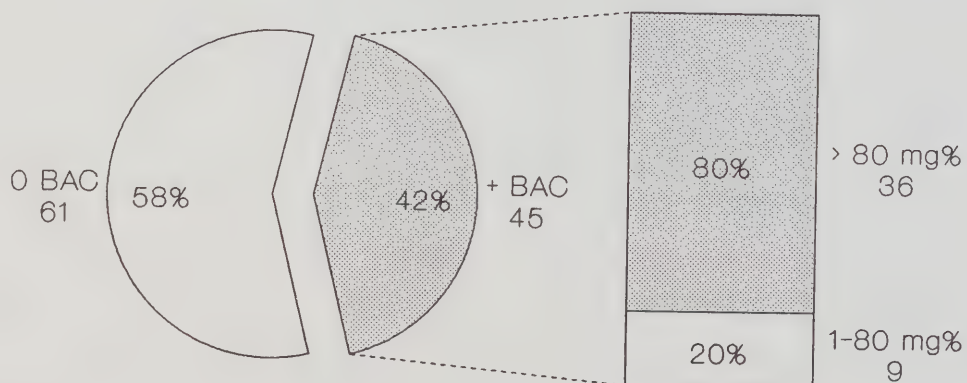
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	262	218 (83.2)	77 (35.3)	9 (4.1)	5 (2.3)	31 (14.2)	96 (44.0)
MULTIPLE- VEHICLE	367	307 (83.7)	229 (74.6)	26 (8.5)	7 (2.3)	11 (3.6)	34 (11.1)
TOTAL	629	525 (83.5)	306 (58.3)	35 (6.7)	12 (2.3)	42 (8.0)	130 (24.8)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 8-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: Ontario, 1995

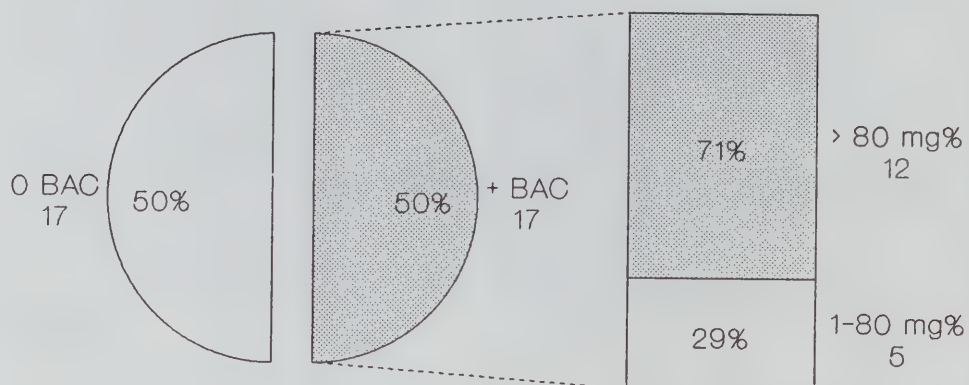


AUTOMOBILE DRIVERS

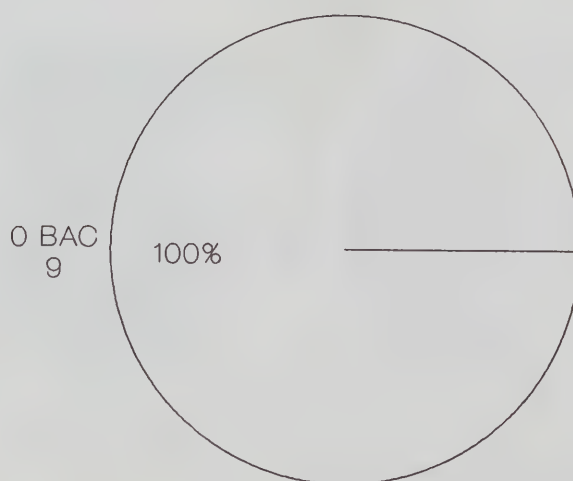


TRUCK/VAN DRIVERS

Figure 8-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: Ontario, 1995



MOTORCYCLE RIDERS



TRACTOR-TRAILER DRIVERS

Figure 8-5
Alcohol Use Among Drivers: Type of Collision, Ontario, 1995

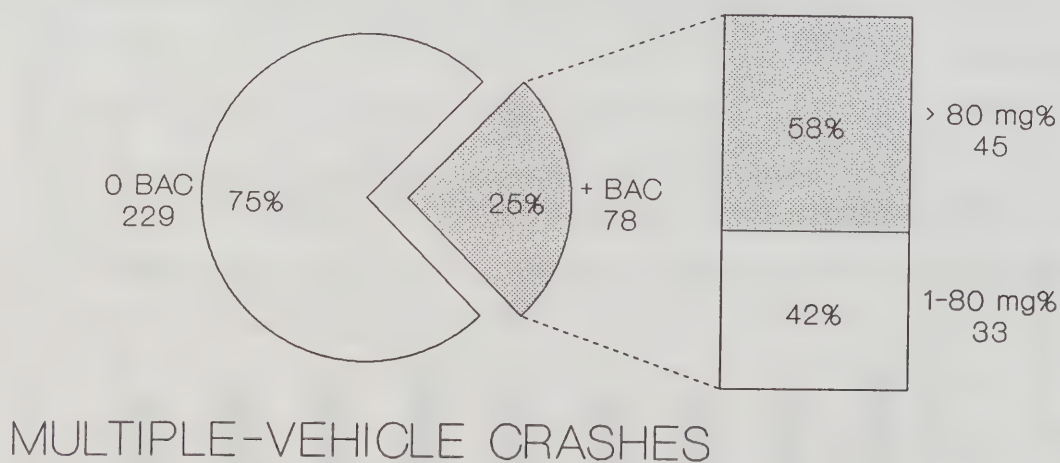
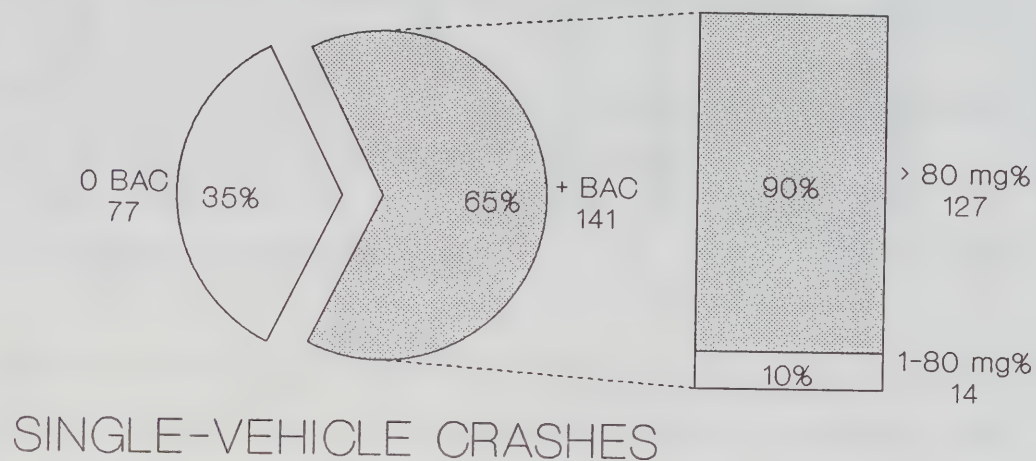


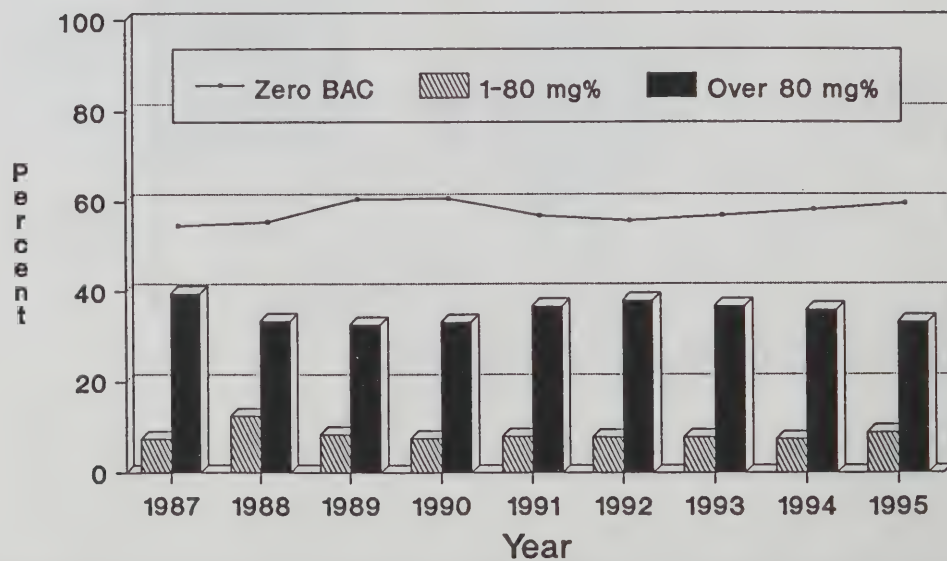
Table 8-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Ontario

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	Drivers Grouped by BAC (mg%)				
					(% Tested)	1 - 80	(% Tested)	> 80	(% Tested)
1987	613	540	88.1	286	53.0	40	7.4	214	39.6
1988	555	521	93.8	281	53.9	65	12.5	175	33.6
1989	642	586	91.3	345	58.9	49	8.4	192	32.7
1990	545	486	89.1	287	59.1	37	7.6	162	33.3
1991	531	462	87.0	255	55.2	37	8.0	170	36.8
1992	538	473	87.9	256	54.1	37	7.9	180	38.1
1993	604	518	85.9	287	55.3	41	7.9	191	36.8
1994	548	508	92.7	287	56.5	38	7.5	183	36.0
1995	532	480	90.2	278	57.9	42	8.8	160	33.3

* dying in less than six hours.

Figure 8-6
Trends in Alcohol Use Among
Driver Fatalities: Ontario, 1987-95



9.0 QUEBEC:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Quebec.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

9.1 GENERAL FINDINGS: 1995

Tables 9-1 to 9-4 contain the data on which the various figures in this section are based. Table 9-1 contains information on alcohol use by drivers of various age groups; Table 9-2 compares male and female drivers; Table 9-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 9-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and, the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

9.1.1 Rates of Testing for Alcohol. Quebec had a testing rate in 1995 slightly below the Canadian average, with 77.6% of fatally injured drivers were tested for the presence of alcohol in Quebec compared to 84% in Canada.

9.1.2 Incidence of Alcohol. As the totals at the bottom of Table 9-1 indicates, among tested drivers in Quebec:

- o 55.7% showed no evidence of alcohol;
- o 4.4% had BACs below 50 mg%;

- o 3.3% had BACs from 50 to 80 mg%;
- o 11.9% had BACs from 81 to 150 mg%; and,
- o 24.7% had BACs over 150 mg%.

Thus, 44.3% of fatally injured drivers in Quebec had been drinking and most of these had illegal BACs.

o *Age.* Table 9-1 and Figure 9-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers aged 26-35 were the least likely to be sober -- the most likely to have been drinking; 44% of drivers in this age group were sober -- 56% of drivers had been drinking. By contrast, 73% of drivers over 55 showed no evidence of alcohol.

Figure 9-2 shows the proportion of all drinking-drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers age 26-35 account for 32% of drivers with BACs below the statutory limit. Also, among legally impaired drivers, 32% were between the ages of 26 and 35.

o *Gender.* As shown in Table 9-2 and Figure 9-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were more likely to have been drinking than female drivers (46% and 37%, respectively). Among those who were drinking, drivers with BACs over the legal limit were far more prevalent in both groups. Among fatally injured drinking drivers, 84% of males had BACs over 80 mg%; while 77% of females had BACs over the statutory limit.

o *Type of Vehicle.* Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 9-3 and illustrated in Figures 9-4a and 9-4b. About 46% of fatally injured drivers of automobiles and 55% of the drivers of trucks/vans were found to have been drinking. Alcohol was also detected in 22% of the motorcycle riders.

None of the three tractor-trailer drivers tested for alcohol had been drinking. About 82% of drinking drivers operating automobiles, 86% of those operating trucks/vans and 75% of motorcycle riders had BACs over the legal limit.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 9-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than in those involved in multiple-vehicle collisions. As shown in Figure 9-5, some 64% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 28% of those involved in multiple-vehicle collisions. Higher BACs were more characteristic of single-vehicle crashes -- 88% of the drinking drivers in single-vehicle crashes had BACs over the legal limit, compared to 73% in multiple-vehicle crashes.

9.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers in Quebec from 1987 to 1995 are presented in Table 9-5. These data are illustrated in Figure 9-6, which shows changes between 1987 and 1995 in the percent of fatally injured drivers who: (1) showed no evidence of alcohol; (represented by the line) (2) had BACs below the legal limit (the striped bars); and (3) had BACs over the legal limit (the solid bars).

As can be seen, the incidence of "sober" drivers had generally increased, peaking in 1993. The incidence of drivers with BACs above the legal limit has declined over this nine year period.

Table 9-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Quebec, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
< 16	4	2 (50.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
16-17	15	10 (66.7)	4 (40.0)	0 (0.0)	0 (0.0)	4 (40.0)	2 (20.0)
18-19	33	29 (87.9)	17 (58.6)	2 (6.9)	1 (3.4)	5 (17.2)	4 (13.8)
20-25	83	67 (80.7)	35 (52.2)	4 (6.0)	4 (6.0)	9 (13.4)	15 (22.4)
26-35	109	91 (83.5)	40 (44.0)	4 (4.4)	5 (5.5)	8 (8.8)	34 (37.4)
36-45	75	59 (78.7)	32 (54.2)	1 (1.7)	1 (1.7)	8 (13.6)	17 (28.8)
46-55	56	40 (71.4)	25 (62.5)	1 (2.5)	0 (0.0)	3 (7.5)	11 (27.5)
> 55	90	63 (70.0)	46 (73.0)	4 (6.3)	1 (1.6)	6 (9.5)	6 (9.5)
TOTAL	465	361 (77.6)	201 (55.7)	16 (4.4)	12 (3.3)	43 (11.9)	89 (24.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 9-1
Alcohol Use and Age of Driver
Quebec, 1995

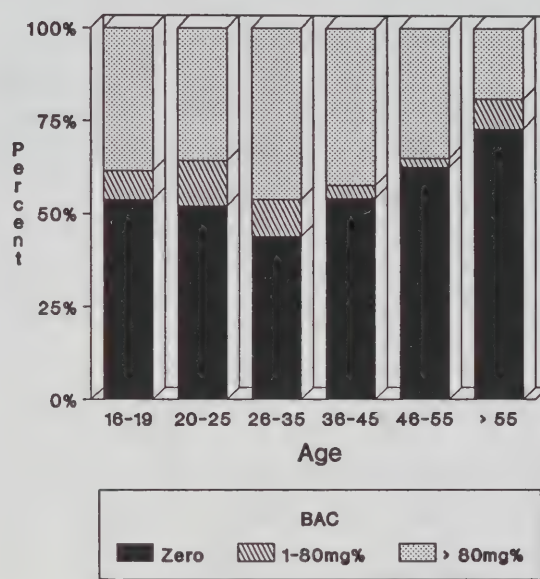


Figure 9-2
Proportion of Drinking Drivers by Age
Quebec, 1995

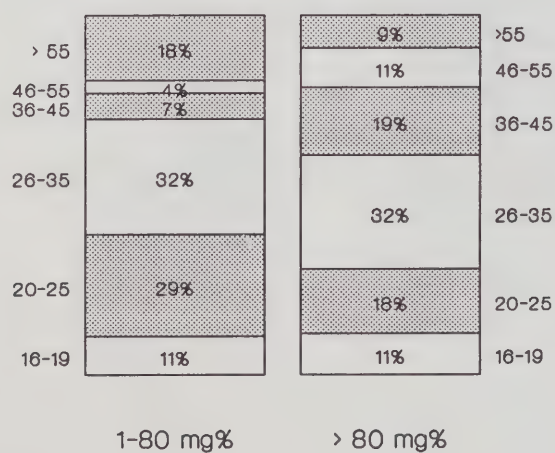


Table 9-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Quebec, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	366	291 (79.5)	157 (54.0)	11 (3.8)	11 (3.8)	34 (11.7)	78 (26.8)
FEMALE	99	70 (70.7)	44 (62.9)	5 (7.1)	1 (1.4)	9 (12.9)	11 (15.7)
TOTAL	465	361 (77.6)	201 (55.7)	16 (4.4)	12 (3.3)	43 (11.9)	89 (24.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 9-3
Alcohol Use Among Male and Female
Drivers: Quebec, 1995

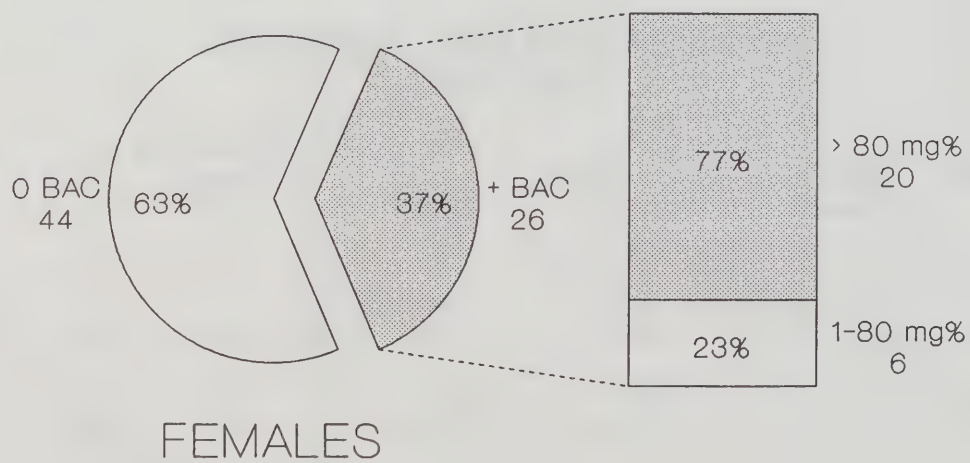
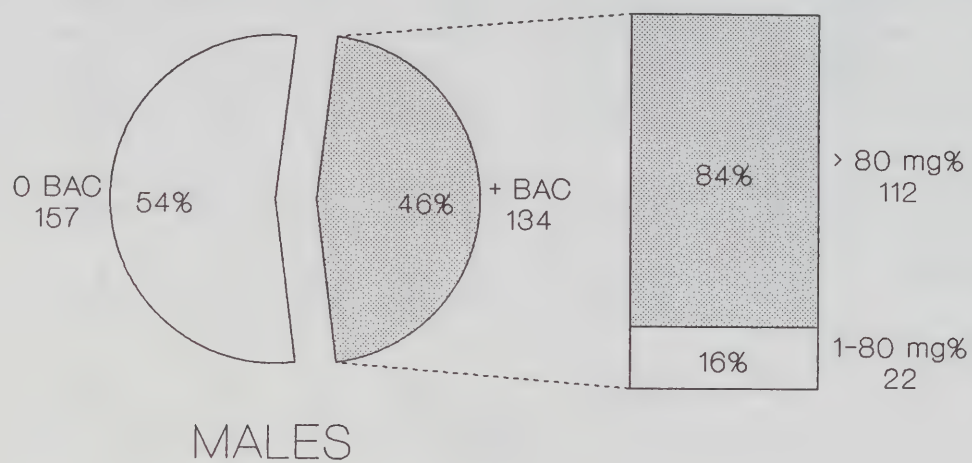


Table 9-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	327	257 (78.6)	140 (54.5)	13 (5.1)	8 (3.1)	34 (13.2)	62 (24.1)
TRUCK-VAN	78	64 (82.1)	29 (45.3)	3 (4.7)	2 (3.1)	7 (10.9)	23 (35.9)
MOTORCYCLE	52	36 (69.2)	28 (77.8)	0 (0.0)	2 (5.6)	2 (5.6)	4 (11.1)
TRACTOR- TRAILER	7	3 (42.9)	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	464	360 (77.6)	200 (55.6)	16 (4.4)	12 (3.3)	43 (11.9)	89 (24.7)

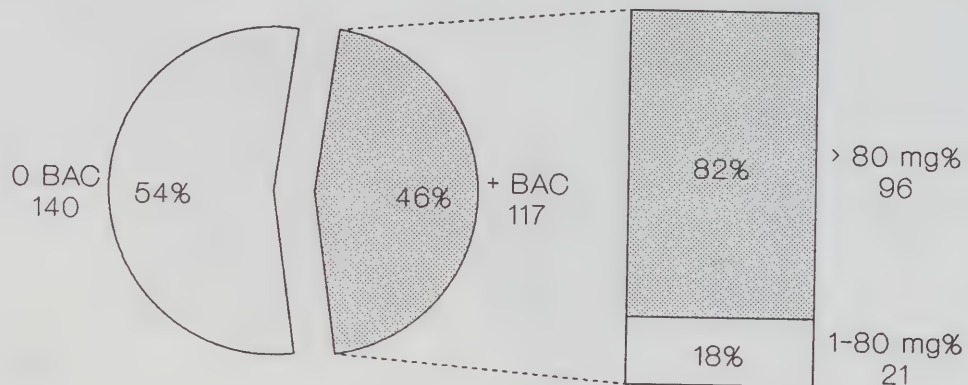
Table 9-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

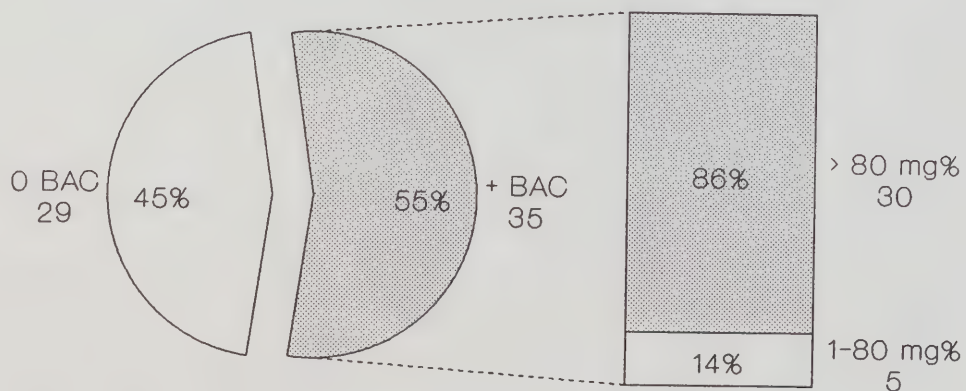
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	198	163 (82.3)	59 (36.2)	6 (3.7)	7 (4.3)	32 (19.6)	59 (36.2)
MULTIPLE- VEHICLE	267	198 (74.2)	142 (71.7)	10 (5.1)	5 (2.5)	11 (5.6)	30 (15.2)
TOTAL	465	361 (77.6)	201 (55.7)	16 (4.4)	12 (3.3)	43 (11.9)	89 (24.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 9-4a
Alcohol Use Among Drivers of Different
Types of Vehicles: Quebec, 1995

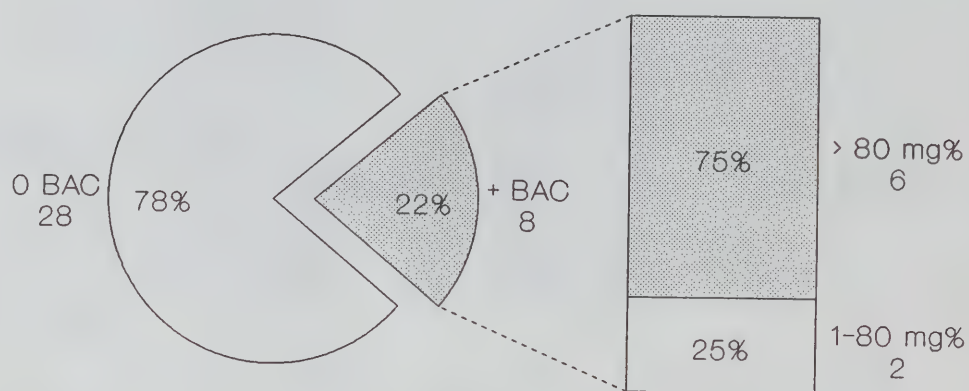


AUTOMOBILE DRIVERS

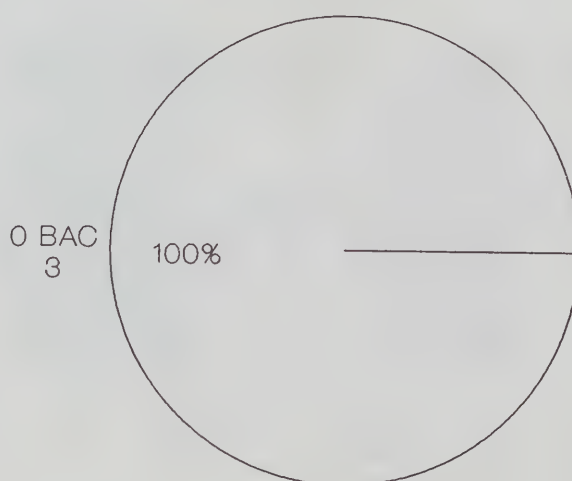


TRUCK/VAN DRIVERS

Figure 9-4b
Alcohol Use Among Drivers of Different
Types of Vehicles: Quebec, 1995

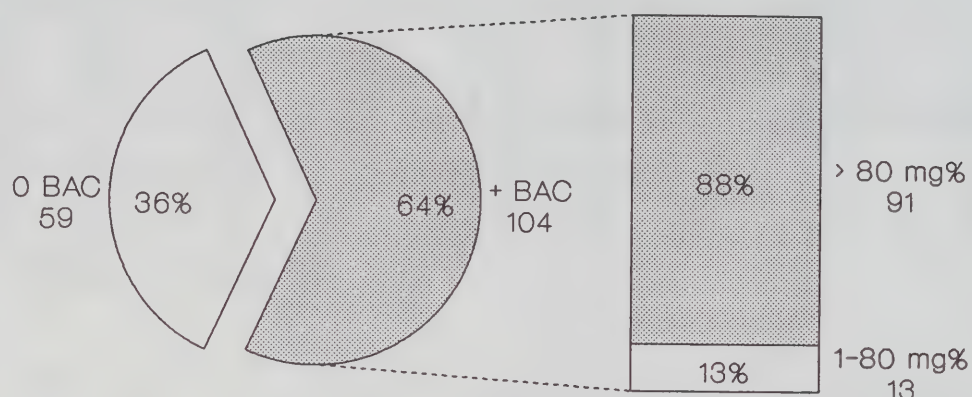


MOTORCYCLE RIDERS

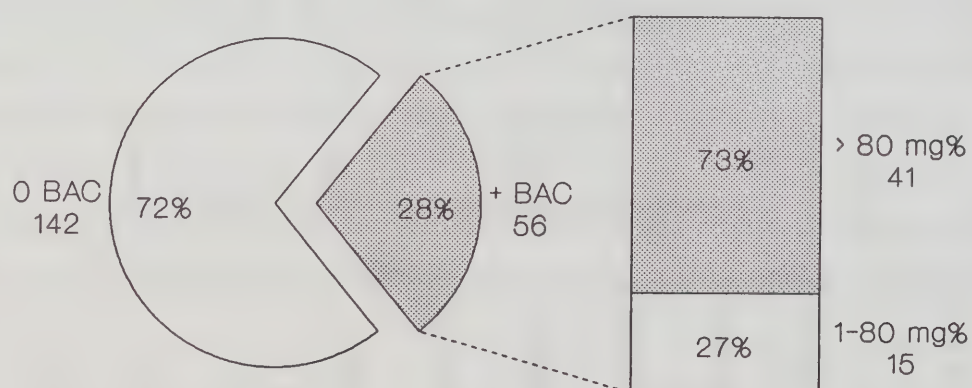


TRACTOR-TRAILER DRIVERS

Figure 9-5
Alcohol Use Among Drivers: Type of
Collision, Quebec, 1995



SINGLE-VEHICLE CRASHES



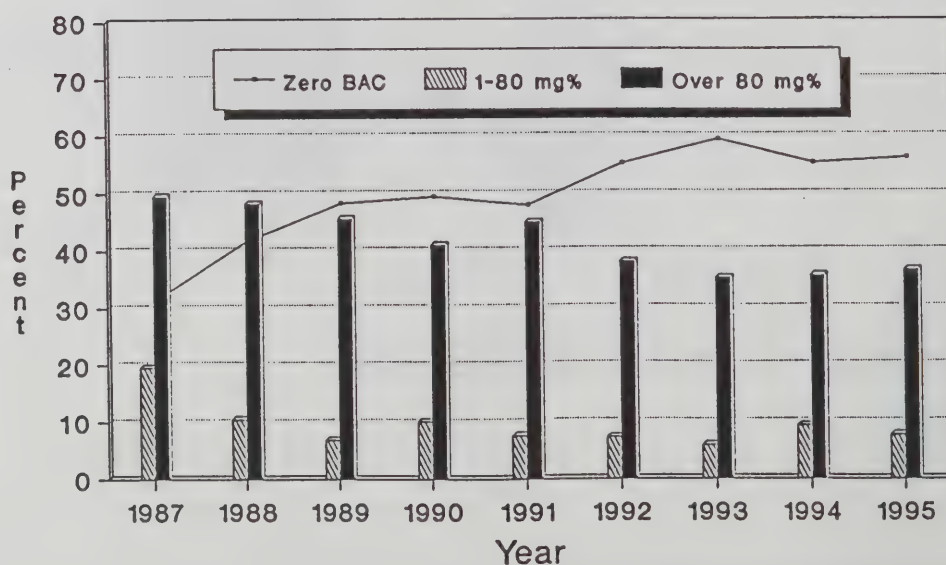
MULTIPLE-VEHICLE CRASHES

Table 9-5

Alcohol Use Among Fatally Injured Drivers:
Quebec, 1987-1995

YEAR	Number Of Drivers *	Drivers Tested	(% Total)	Zero	(% Tested)	Drivers Grouped by BAC (mg%)			
						1 - 80	(% Tested)	> 80	(% Tested)
1987	567	301	53.1	93	30.9	59	19.6	149	49.5
1988	631	392	62.1	162	41.3	41	10.5	189	48.2
1989	657	426	64.8	203	47.7	29	6.9	194	45.6
1990	582	395	67.9	193	48.9	40	10.1	162	41.0
1991	559	380	68.0	180	47.4	29	7.6	171	45.0
1992	512	383	74.8	209	54.6	28	7.3	146	38.1
1993	499	406	81.4	239	58.9	24	5.9	143	35.3
1994	448	334	74.6	182	54.8	31	9.3	119	35.7
1995	465	361	77.6	201	55.7	28	7.7	132	36.6

Figure 9-6
Alcohol Use Among Fatally Injured
Drivers, Quebec: 1987 to 1995



10.0 NEW BRUNSWICK:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in New Brunswick.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

10.1 GENERAL FINDINGS: 1995

Tables 10-1 to 10-4 contain the data on which the various figures in this section are based. Table 10-1 contains information on alcohol use by drivers of various age groups; Table 10-2 compares male and female drivers; Table 10-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 10-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

10.1.1 Rates of Testing for Alcohol. New Brunswick had high testing rate in 1995, with 80% of fatally injured drivers being tested for the presence of alcohol (see Table 10-1).

10.1.2 Incidence of Alcohol. As the totals at the bottom of Table 10-1 indicate, among tested drivers in New Brunswick:

- o 53.6% showed no evidence of alcohol;
- o 7.1% had BACs from 1 to 49 mg%;

- o 3.6% had BACs from 81 to 150 mg%; and,
- o 35.7% had BACs over 150 mg%.

Thus, 46% of fatally injured drivers in New Brunswick who were tested for alcohol had been drinking and most of these had illegal BACs.

o Age. Table 10-1 and Figure 10-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers age 36-45 were the least likely to be sober -- the most likely to have been drinking; only 30% of drivers were sober. By contrast, most drivers age 46 to 55 (86%) showed no evidence of alcohol, as did 77% of those over 55.

Figure 10-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, drivers over 55 account for 55% of those with BACs between 1 and 80 mg%. Among fatally injured drinking drivers with BACs over the legal limit, 32% were between 26 and 35 years of age.

o Gender. As shown in Table 10-2 and Figure 10-3, alcohol use was related to the *gender of the driver*. Fatally injured male drivers were more likely to have been drinking than female drivers (50% and 17%, respectively). Among male drivers who were drinking, most had BACs over the legal limit (84%). The one drinking-driving female had a BAC over 80 mg%.

o Type of vehicle. Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 10-3 and illustrated in Figures 10-4a and 10-4b. Some 44% of fatally injured drivers of automobiles and 60%

o Type of Collision. The incidence of alcohol also varied as a function of the *type of collision* (see Table 10-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions. As shown in Figure 10-5, some 86% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 23% in multiple-vehicle collisions. High BACs dominated among drinking drivers in both single- and multiple-vehicle crashes. Among drinking drivers involved in single-vehicle crashes, 83% had BACs over the legal limit as did 88% of drinking drivers in multiple-vehicle crashes.

10.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers over the nine-year period from 1987-1995 are shown in Table 10-5. Trends are illustrated in Figure 10-6 which shows changes in the percent of fatally injured drivers who: (1) were sober (represented by the line); (2) had BACs below the legal limit (given by the striped bars); and (3) had BACs over the legal limit (the solid bars).

As can be seen, the incidence of sober drivers increased from 1987 to 1990, declined in 1991 and has remained relatively consistent to 1994. In 1995, the percent of fatally injured who were sober increased slightly. The incidence of drivers with illegal BACs generally dropped from 1987 to 1993, then increased slightly in 1994. In 1995, there was a decrease in the incidence of drivers with illegal BACs.

Table 10-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(New Brunswick, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
16-17	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
18-19	5	3 (60.0)	2 (66.7)	0 (0.0)	0 (0.0)	0 (0.0)	1 (33.3)
20-25	13	11 (84.6)	4 (36.4)	1 (9.1)	0 (0.0)	0 (0.0)	6 (54.5)
26-35	15	12 (80.0)	5 (41.7)	0 (0.0)	0 (0.0)	1 (8.3)	6 (50.0)
36-45	11	10 (90.9)	3 (30.0)	1 (10.0)	0 (0.0)	1 (10.0)	5 (50.0)
46-55	8	7 (87.5)	6 (85.7)	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.3)
>55	17	13 (76.5)	10 (76.9)	2 (15.4)	0 (0.0)	0 (0.0)	1 (7.7)
TOTAL	70	56 (80.0)	30 (53.6)	4 (7.1)	0 (0.0)	2 (3.6)	20 (35.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 10-1
Alcohol Use and Age of Driver
New Brunswick, 1995

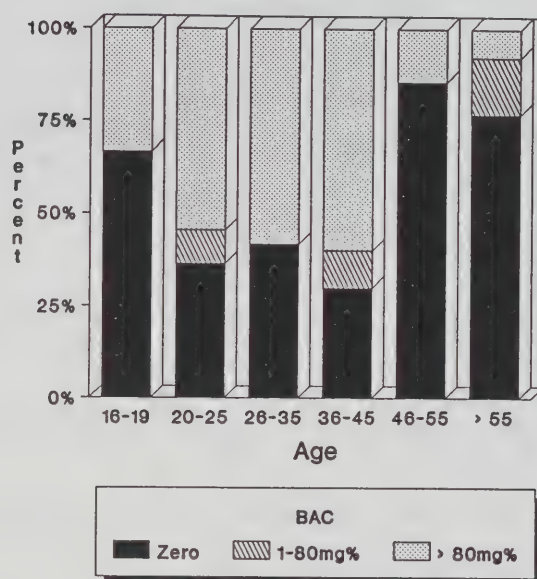


Figure 10-2
Proportion of Drinking Drivers by Age
New Brunswick, 1995

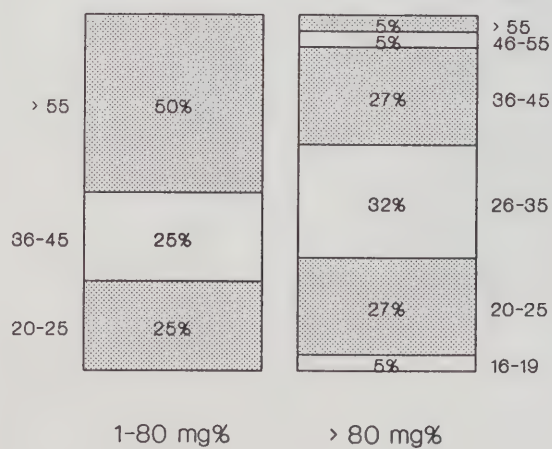


Table 10-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(New Brunswick, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	60	50 (83.3)	25 (50.0)	4 (8.0)	0 (0.0)	2 (4.0)	19 (38.0)
FEMALE	10	6 (60.0)	5 (83.3)	0 (0.0)	0 (0.0)	0 (0.0)	1 (16.7)
TOTAL	70	56 (80.0)	30 (53.6)	4 (7.1)	0 (0.0)	2 (3.6)	20 (35.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 10-3
Alcohol Use Among Male and Female
Drivers: New Brunswick, 1995

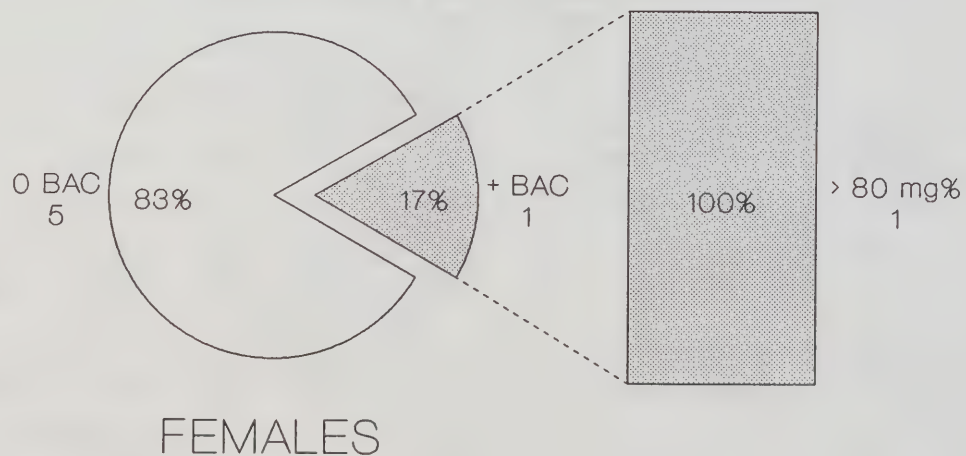
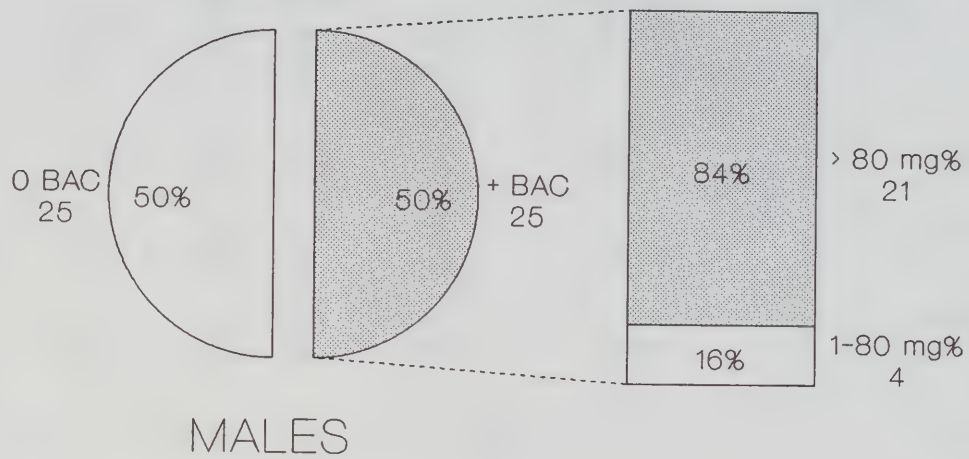


Table 10-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	50	39 (78.0)	22 (56.4)	3 (7.7)	0 (0.0)	1 (2.6)	13 (33.3)
TRUCK-VAN	17	15 (88.2)	6 (40.0)	1 (6.7)	0 (0.0)	1 (6.7)	7 (46.7)
MOTORCYCLE	2	1 (50.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	69	55 (79.7)	29 (52.7)	4 (7.3)	0 (0.0)	2 (3.6)	20 (36.4)

Table 10-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	28	21 (75.0)	3 (14.3)	3 (14.3)	0 (0.0)	2 (9.5)	13 (61.9)
MULTIPLE- VEHICLE	42	35 (83.3)	27 (77.1)	1 (2.9)	0 (0.0)	0 (0.0)	7 (20.0)
TOTAL	70	56 (80.0)	30 (53.6)	4 (7.1)	0 (0.0)	2 (3.6)	20 (35.7)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 10-4a
Alcohol Use Among Drivers of Different
Vehicle Types: New Brunswick, 1995

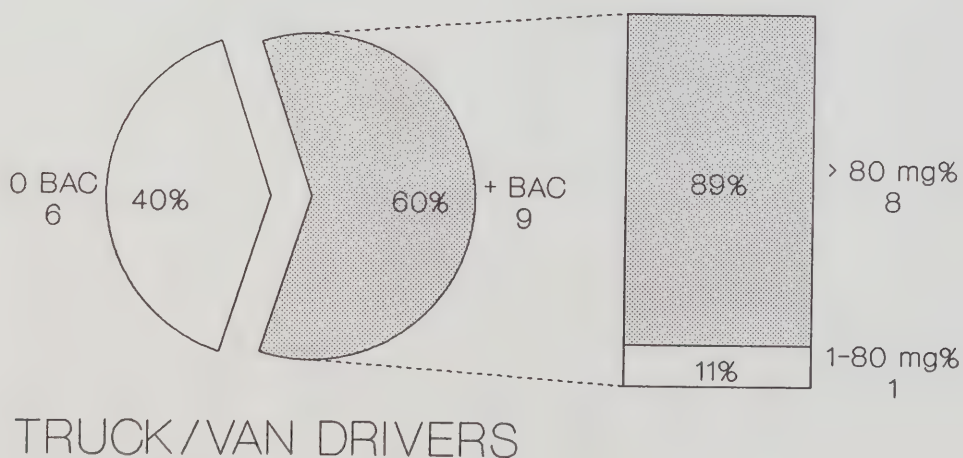
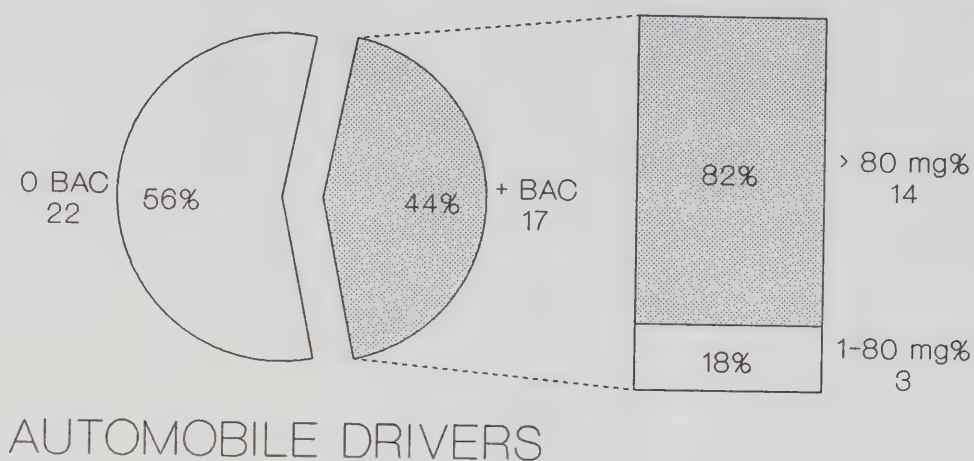
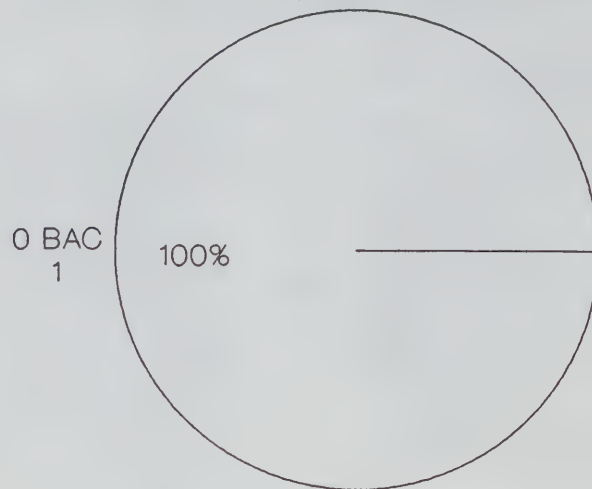
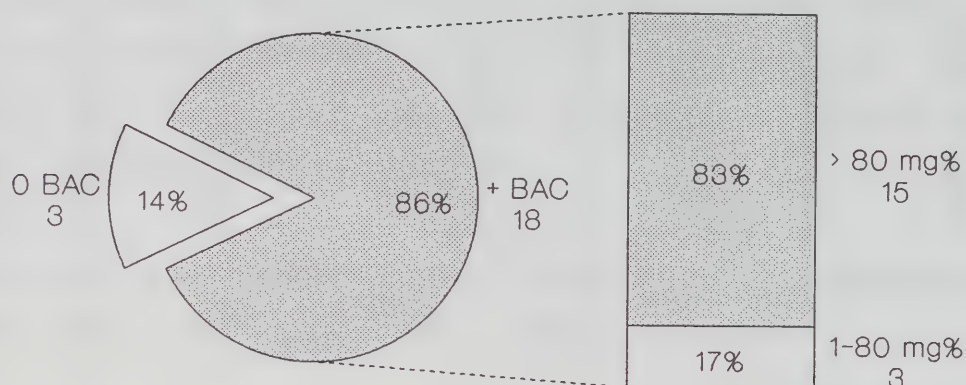


Figure 10-4b
Alcohol Use Among Drivers of Different
Vehicle Types: New Brunswick, 1995

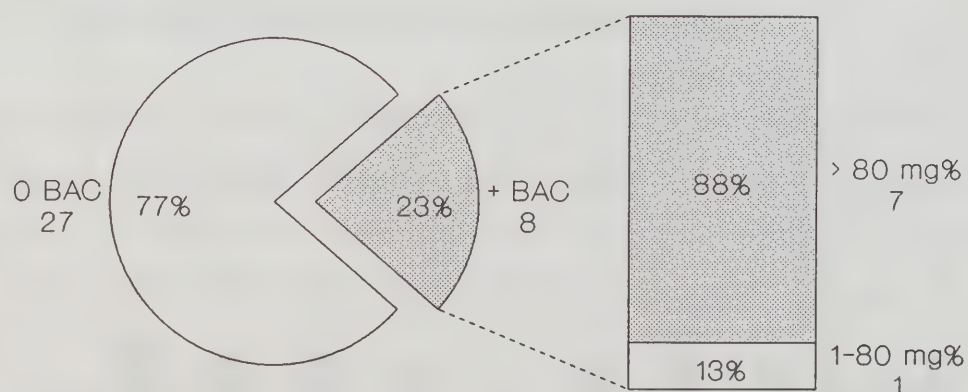


MOTORCYCLE RIDERS

Figure 10-5
Alcohol Use Among Drivers: Type of
Collision, New Brunswick 1995



SINGLE-VEHICLE CRASHES



MULTIPLE-VEHICLE CRASHES

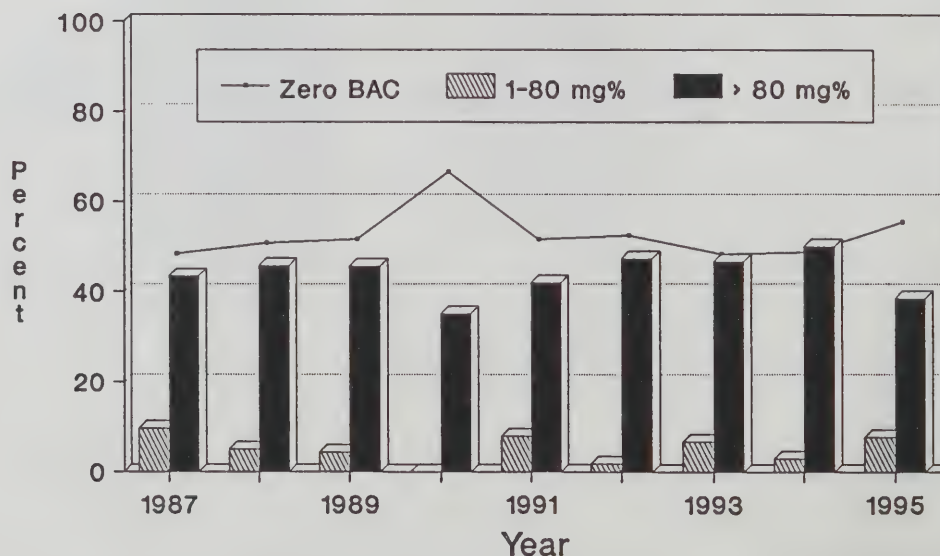
Table 10-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in New Brunswick

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	(% Tested)	Drivers Grouped by BAC (mg%)			
						1 - 80	(% Tested)	> 80	(% Tested)
1987	73	62	84.9	29	46.8	6	9.7	27	43.5
1988	82	59	72.0	29	49.2	3	5.1	27	45.8
1989	68	46	67.6	23	50.0	2	4.3	21	45.7
1990	78	74	94.9	48	64.9	0	0.0	26	35.1
1991	51	50	98.0	25	50.0	4	8.0	21	42.0
1992	64	55	85.9	28	50.9	1	1.8	26	47.3
1993	70	60	85.7	28	46.7	4	6.7	28	46.7
1994	38	34	89.5	16	47.1	1	2.9	17	50.0
1995	61	52	85.2	28	53.8	4	7.7	20	38.5

* dying in less than six hours.

Figure 10-6
Trends in Alcohol Use Among
Driver Fatalities: New Brunswick 1987-95



11.0 PRINCE EDWARD ISLAND:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Prince Edward Island. The small number of cases -- 12 drivers -- compromises the reliability and generality of these findings. Results should be treated cautiously.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

11.1 GENERAL FINDINGS: 1995

Table 11-1 contains information on alcohol use by drivers of various age groups; Table 11-2 compares male and female drivers; Table 11-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 11-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions. Figures are not provided owing to the small number of cases.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

11.1.1 Rates of Testing for Alcohol. Prince Edward Island had a testing rate in 1995 slightly below the Canadian average, with 75% of fatally injured drivers being tested for the presence of alcohol -- this compares to a testing rate of 84% for Canada. *Due to the small number of motor vehicle fatalities in Prince Edward Island, the generality of the following results must be treated with caution.*

11.1.2 Incidence of Alcohol. As the totals at the bottom of Table 11-1 indicate, among the 9 tested drivers in Prince Edward Island:

- o four drivers (44%) showed no evidence of alcohol;
- o two drivers (22%) had a BAC from 81 to 150 mg%; and,
- o three drivers (33%) had BACs over 150 mg%.

Thus, 55% of fatally injured drivers in Prince Edward Island had been drinking and all of these drivers had illegal BACs.

o Age. Table 11-1 shows the incidence of alcohol among drivers of various ages. The driver age 16-17 was sober. Five out of eight (63%) fatally injured drivers age 20-35 had illegal BACs.

o Gender. As shown in Table 11-2 alcohol use was related to the *gender of the driver*. Five of the eight fatally injured male drivers (63%) tested had illegal BACs. The female driver tested for alcohol was sober.

o Type of Vehicle. Table 11-3 shows that four of the seven fatally injured automobile drivers (57%) had illegal BACs. The fatally injured truck/van driver was sober and the motorcyclist who was tested had an illegal BAC.

o Type of Collision. Alcohol was found more often in drivers involved in single-vehicle collisions than in those involved in multiple-vehicle collisions. As shown in Table 11-4, five of the six (83%) drivers involved in single-vehicle crashes tested positive for alcohol, while the three drivers in multiple-vehicle collisions were sober.

11.2 TRENDS IN ALCOHOL USE AMONG AUTOMOBILE DRIVERS

Data on alcohol use among fatally injured drivers over the 9-year period from 1987-1995

are shown in Table 11-5. As can be seen, the small number of cases produces substantial variability in the data over time; thus, trends cannot readily be discerned.

Table 11-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Prince Edward Island, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
16-17	3	1 (33.3)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
20-35	8	8 (100.0)	3 (37.5)	0 (0.0)	0 (0.0)	2 (25.0)	3 (37.5)
>55	1	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	12	9 (75.0)	4 (44.4)	0 (0.0)	0 (0.0)	2 (22.2)	3 (33.3)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 11-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Prince Edward Island, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	10	8 (80.0)	3 (37.5)	0 (0.0)	0 (0.0)	2 (25.0)	3 (37.5)
FEMALE	2	1 (50.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	12	9 (75.0)	4 (44.4)	0 (0.0)	0 (0.0)	2 (22.2)	3 (33.3)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 11-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	9	7 (77.8)	3 (42.9)	0 (0.0)	0 (0.0)	2 (28.6)	2 (28.6)
TRUCK-VAN	1	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
MOTORCYCLE	2	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
TOTAL	12	9 (75.0)	4 (44.4)	0 (0.0)	0 (0.0)	2 (22.2)	3 (33.3)

Table 11-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	7	6 (85.7)	1 (16.7)	0 (0.0)	0 (0.0)	2 (33.3)	3 (50.0)
MULTIPLE- VEHICLE	5	3 (60.0)	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	12	9 (75.0)	4 (44.4)	0 (0.0)	0 (0.0)	2 (22.2)	3 (33.3)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 11-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Prince Edward Island

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	(% Tested)	Drivers Grouped by BAC (mg%)			
						1 - 80	(% Tested)	> 80	(% Tested)
1987	6	5	83.3	2	40.0	0	0.0	3	60.0
1988	9	8	88.9	4	50.0	0	0.0	4	50.0
1989	8	5	67.5	2	40.0	0	0.0	3	60.0
1990	10	9	90.0	4	44.4	3	33.3	2	22.2
1991	16	16	100.0	11	68.8	1	6.3	4	25.0
1992	7	6	85.7	3	50.0	1	16.7	2	33.3
1993	9	8	88.9	3	37.5	0	0.0	5	62.5
1994	11	11	100.0	7	63.6	1	9.1	3	27.3
1995	9	8	88.9	3	37.5	2	25.0	3	37.5

* dying in less than six hours.

12.0 NOVA SCOTIA:

Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Nova Scotia.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

12.1 GENERAL FINDINGS: 1995

Tables 12-1 to 12-4 contain the raw data on which the various figures in this section are based. Table 12-1 contains information on alcohol use by drivers of various age groups; Table 12-2 compares male and female drivers; Table 12-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 12-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this indicates the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

12.1.1 Rates of Testing for Alcohol. Nova Scotia had a testing rate in 1995 slightly lower than the Canadian average, with 79.1% of fatally injured drivers being tested for the presence of alcohol -- this compares to a national average of 84%.

12.1.2 Incidence of Alcohol. As the totals at the bottom of Table 12-1 indicate, among tested drivers in Nova Scotia:

- o 49.1% showed no evidence of alcohol;
- o 7.5% had BACs from 1 to 49 mg%;

- o 3.8% had BACs from 50 to 80 mg%;
- o 9.4% had BACs from 81 to 150 mg%; and,
- o 30.2% had BACs over 150 mg%.

Thus, 50.9% of fatally injured drivers in Nova Scotia who were tested for alcohol had been drinking and most of these had illegal BACs.

o Age. Table 12-1 and Figure 12-1 show the incidence of alcohol among drivers of various ages. For each age group, the solid portion of the bar indicates the percent of drivers in that age group who were sober. As can be seen, drivers aged 20-25 were the least likely to be sober -- the most likely to have been drinking; 90% of the drivers aged 20-25 had been drinking. Sober drivers were more characteristic of those 36-45 and over 55 years of age. All drivers in these age groups were sober.

Figure 12-2 shows the proportion of drinking drivers accounted for by each age group. The left bar indicates the percent of drinking drivers with BACs of 80 mg% or less accounted for by each age group. On the right are comparable data for drivers with BACs over the statutory limit. As can be seen, among drinking drivers with BACs of 80 mg% or less, 50% were age 16-19. Drivers age 20-25 accounted for 38% of those with BACs over the legal limit.

o Gender. As shown in Table 12-2 and Figure 12-3, alcohol use was related to the *gender of the driver*. Among fatally injured male drivers, 59% had been drinking compared to 11% of female drivers. About 77% of the male drivers who were drinking had BACs over the legal limit and the one female drinking driver had a BAC over the legal limit.

o Type of vehicle. Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 12-3 and illustrated in Figures 12-4a and 12-4b. About 44% of fatally injured drivers of automobiles, 64% of the drivers of trucks/vans and 80% of motorcyclists were found to have been drinking. The one fatally injured tractor-trailer driver was sober. Among drinking drivers, 81% of automobile drivers,

71% of truck/van drivers, and 75% of motorcyclists had BACs over the legal limit.

o Type of Collision. The incidence of alcohol also varied as a function of *type of collision* (see Table 12-4). Alcohol was found far more often in drivers involved in single-vehicle collisions than in those involved in multiple-vehicle collisions. As shown in Figure 12-5, some 65% of the drivers involved in single-vehicle crashes were positive for alcohol, compared to only 26% in multiple-vehicle collisions. Of the drinking drivers in single-vehicle crashes, 82% had BACs over the legal limit compared to 60% of drivers in multiple-vehicle crashes.

12.2 TRENDS IN ALCOHOL USE AMONG AUTOMOBILE DRIVERS

Data on alcohol use among fatally injured drivers over the 9-year period from 1987-1995 are shown in Table 12-5. These data are illustrated in Figure 12-6 (three year moving averages), which shows changes in the percent of fatally injured drivers who: (1) were sober (illustrated by the line); (2) had BACs below the legal limit (shown by the striped bars); and (3) had BACs over the legal limit (the solid bars).

As can be seen, over this nine-year period the percent of fatally injured drivers with BACs over the legal limit has fluctuated considerably. However, since 1993, the percent of fatally injured drivers with BACs over 80 mg% has declined; the percent of sober drivers has generally increased over this time period.

Table 12-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Nova Scotia, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC(mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
16-17	2	2 (100.0)	1 (50.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
18-19	8	7 (87.5)	3 (42.9)	1 (14.3)	1 (14.3)	0 (0.0)	2 (28.6)
20-25	11	10 (90.9)	1 (10.0)	1 (10.0)	0 (0.0)	3 (30.0)	5 (50.0)
26-35	16	13 (81.3)	5 (38.5)	0 (0.0)	1 (7.7)	2 (15.4)	5 (38.5)
36-45	8	6 (75.0)	6 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
46-55	9	7 (77.8)	2 (28.6)	1 (14.3)	0 (0.0)	0 (0.0)	4 (57.1)
>55	13	8 (61.5)	8 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	67	53 (79.1)	26 (49.1)	4 (7.5)	2 (3.8)	5 (9.4)	16 (30.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 12-1
Alcohol Use and Age of Driver
Nova Scotia, 1995

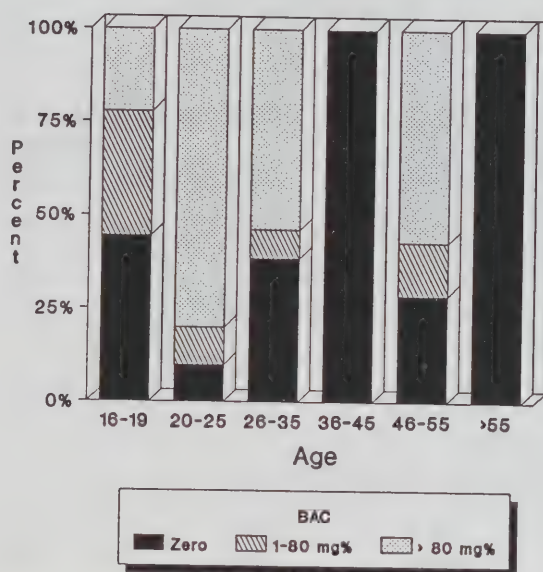


Figure 12-2
Proportion of Drinking Drivers by Age
Nova Scotia, 1995

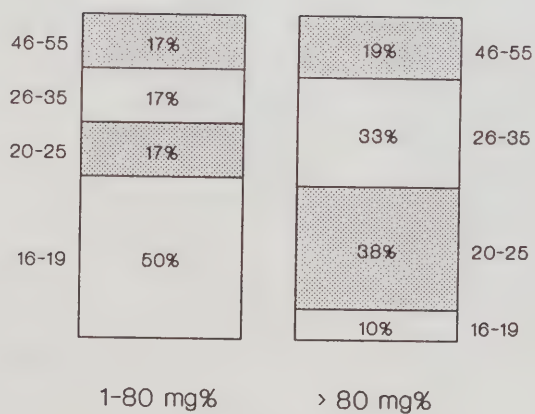


Table 12-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Nova Scotia, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	54	44 (81.5)	18 (40.9)	4 (9.1)	2 (4.5)	5 (11.4)	15 (34.1)
FEMALE	13	9 (69.2)	8 (88.9)	0 (0.0)	0 (0.0)	0 (0.0)	1 (11.1)
TOTAL	67	53 (79.1)	26 (49.1)	4 (7.5)	2 (3.8)	5 (9.4)	16 (30.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 12-3
Alcohol Use Among Male and Female
Drivers: Nova Scotia, 1995

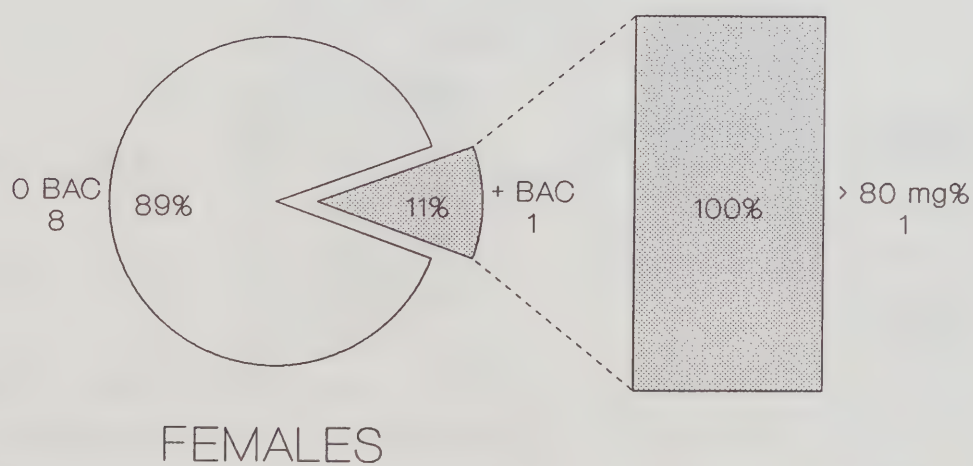
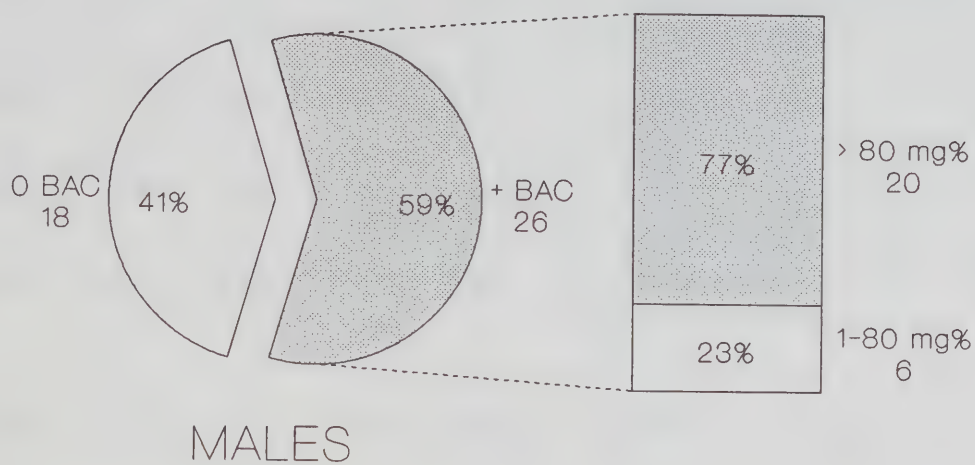


Table 12-3

**Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated**

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	47	36 (76.6)	20 (55.6)	2 (5.6)	1 (2.8)	3 (8.3)	10 (27.8)
TRUCK-VAN	13	11 (84.6)	4 (36.4)	2 (18.2)	0 (0.0)	1 (9.1)	4 (36.4)
MOTORCYCLE	6	5 (83.3)	1 (20.0)	0 (0.0)	1 (20.0)	1 (20.0)	2 (40.0)
TRACTOR- TRAILER	1	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	67	53 (79.1)	26 (49.1)	4 (7.5)	2 (3.8)	5 (9.4)	16 (30.2)

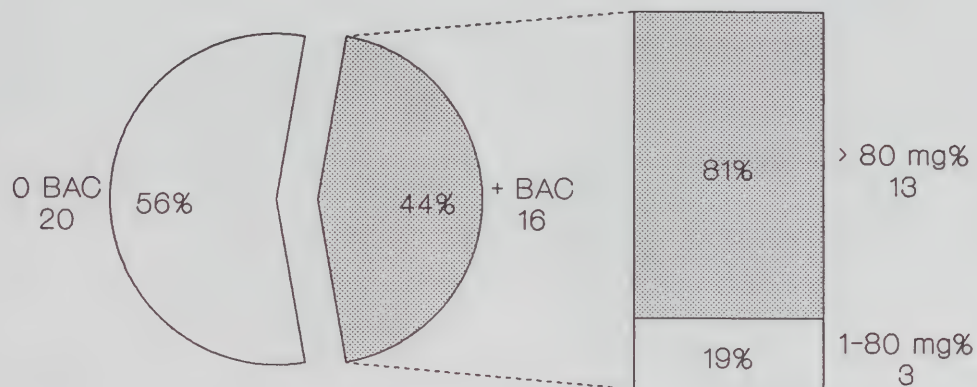
Table 12-4

**Alcohol Use Among Fatally Injured Drivers:
Type of Collision**

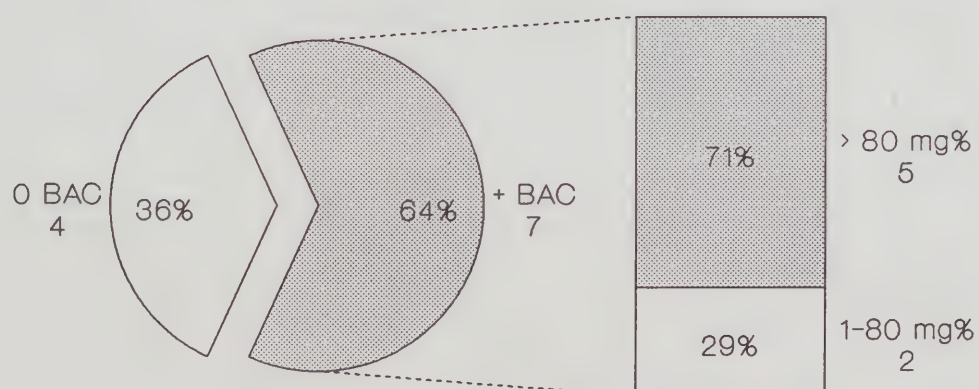
COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	40	34 (85.0)	12 (35.3)	2 (5.9)	2 (5.9)	5 (14.7)	13 (38.2)
MULTIPLE- VEHICLE	27	19 (70.4)	14 (73.7)	2 (10.5)	0 (0.0)	0 (0.0)	3 (15.8)
TOTAL	67	53 (79.1)	26 (49.1)	4 (7.5)	2 (3.8)	5 (9.4)	16 (30.2)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Figure 12-4a
Alcohol Use Among Drivers of Different
Vehicle Types: Nova Scotia, 1995

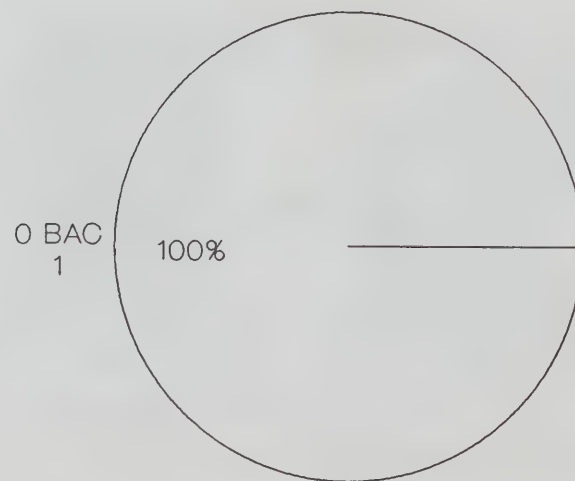
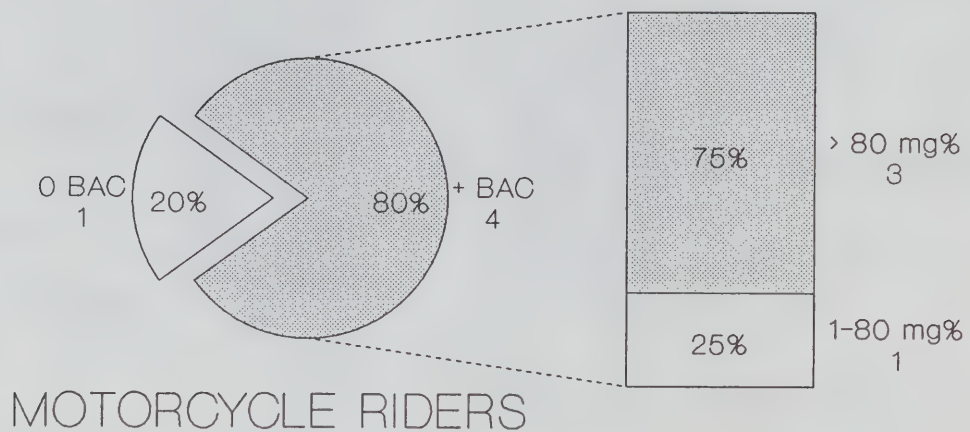


AUTOMOBILE DRIVERS



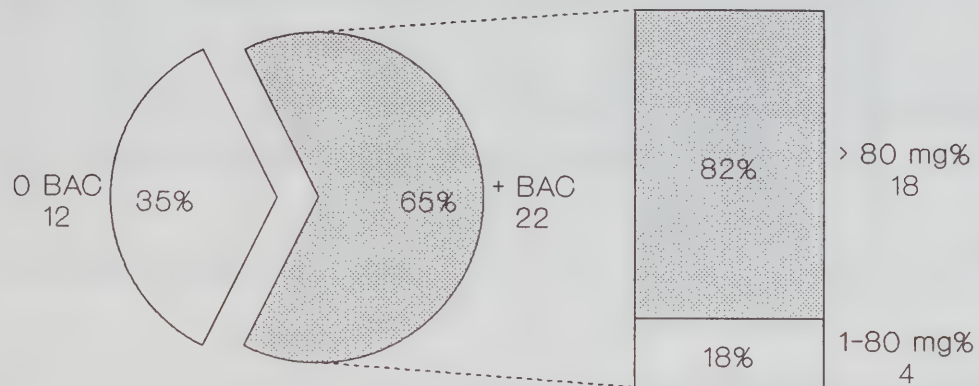
TRUCK/VAN DRIVERS

Figure 12-4b
Alcohol Use Among Drivers of Different
Vehicle Types: Nova Scotia, 1995

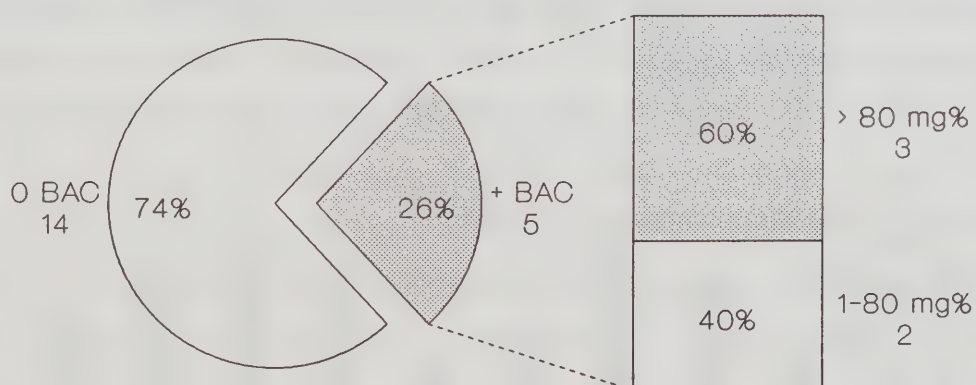


TRACTOR-TRAILER DRIVERS

Figure 12-5
Alcohol Use Among Drivers: Type of
Collision, Nova Scotia 1995



SINGLE-VEHICLE CRASHES



MULTIPLE-VEHICLE CRASHES

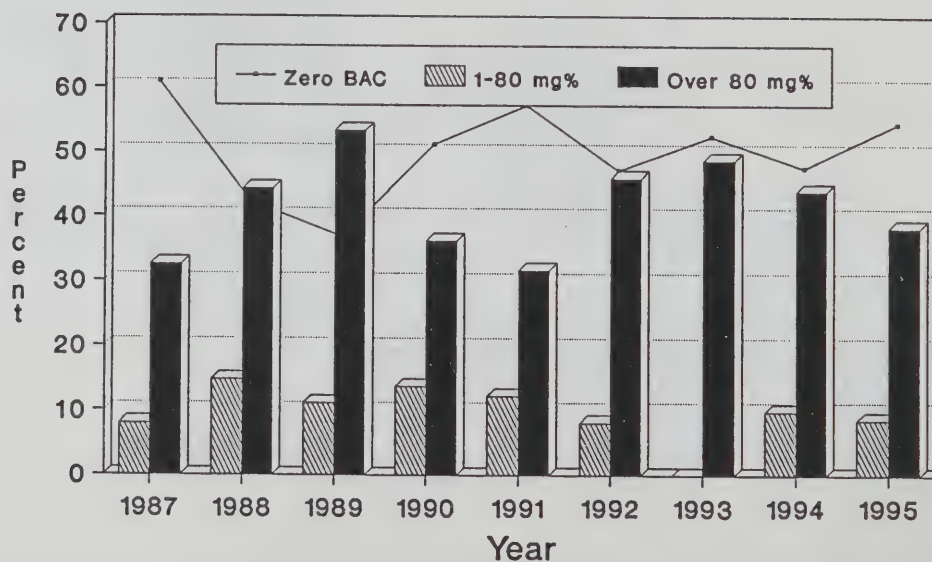
Table 12-5

Alcohol Use Among Fatally Injured Drivers:
9-Year Trend in Nova Scotia

YEAR	Number Of Drivers*	Drivers Tested	(% Total)	Zero	(% Tested)	Drivers Grouped by BAC (mg%)			
						1 - 80	(% Tested)	> 80	(% Tested)
1987	79	62	78.5	37	59.7	5	8.0	20	32.6
1988	85	61	71.8	25	41.0	9	14.7	27	44.3
1989	61	45	73.8	16	35.6	5	11.1	24	53.3
1990	67	58	86.6	29	50.0	8	13.7	21	36.2
1991	54	41	75.9	23	56.1	5	12.2	13	31.7
1992	53	37	69.8	17	45.9	3	8.1	17	45.9
1993	52	39	75.0	20	51.3	0	0.0	19	48.7
1994	50	41	82.0	19	46.3	4	9.8	18	43.9
1995	57	47	82.5	25	53.2	4	8.5	18	38.3

* dying in less than six hours.

Figure 12-6
Alcohol Use Among Driver Fatalities
in Nova Scotia, 1987-1995



13.0 NEWFOUNDLAND AND LABRADOR: Alcohol Use Among Fatally Injured Drivers

This portion of the report contains a brief review of the major findings regarding alcohol use among drivers fatally injured in traffic collisions in Newfoundland.

The first section provides a review of general findings for 1995, and the second section examines trends in alcohol use among driver fatalities.

13.1 GENERAL FINDINGS: 1995

Tables 13-1 to 13-4 contain the data on which the various figures in this section are based. Table 13-1 contains information on alcohol use by drivers of various age groups; Table 13-2 compares male and female drivers; Table 13-3 provides information on alcohol use by drivers of different types of vehicles; and, Table 13-4 shows alcohol levels found in drivers involved in single- and multiple-vehicle collisions.

Each table shows the number of drivers killed, the number and percent who were tested for alcohol, and the results of those tests -- this includes the number and percent of the tested drivers who showed no evidence of alcohol as well as the number and percent who were positive for alcohol in each of four BAC ranges.

13.1.1 Rates of Testing for Alcohol. Newfoundland had a high testing rate in 1995 -- 90.9% of fatally injured drivers being tested for the presence of alcohol (see Table 13-1). *Due to the small number of motor vehicle fatalities in Newfoundland, the results should be treated with caution.*

13.1.2 Incidence of Alcohol. As the totals at the bottom of Table 13-1 indicate, among tested drivers in Newfoundland:

- o 70% showed no evidence of alcohol;
- o 10% had BACs from 81 to 150 mg%; and

- o 20% had BACs over 150 mg%.

Thus, 30% of fatally injured drivers in Newfoundland who were tested for alcohol had been drinking and all of these had illegal BACs.

o Age. Table 13-1 shows the incidence of alcohol among drivers of various ages. As can be seen, drivers age 18-35 and 36-45 were the least likely to be sober -- the most likely to be drinking; 50% of drivers in these age groups had been drinking. By contrast, none of the drivers age 46-55 and over 55 showed any evidence of alcohol.

o Gender. As shown in Table 13-2, most of the fatally injured drivers were males. Six out of nine (67%) fatally injured male drivers were sober. All of the male drivers who were drinking had BACs over the legal limit. The one fatally injured female driver was sober.

o Type of vehicle. Alcohol use varied as a function of the *type of vehicle* being operated, as shown in Table 13-3. Two out of six (33%) fatally injured drivers of automobiles and one out of two (50%) fatally injured drivers of trucks/vans had been drinking. Both of the fatally injured tractor-trailer drivers tested negative for alcohol. Regardless of the vehicle type, all drinking drivers had BACs over the legal limit.

o Type of Collision. Alcohol was found more often in drivers involved in single-vehicle collisions than among those involved in multiple-vehicle collisions (see Table 13-4). Some 60% of the drivers involved in single-vehicle crashes (3 of 5) were positive for alcohol, while none of the fatally injured drivers in multiple-vehicle collisions tested positive. All drinking drivers had BACs over the legal limit.

13.2 TRENDS IN ALCOHOL USE AMONG DRIVERS

Data on alcohol use among fatally injured drivers from 1987 to 1995 are shown in Table 13-5.

Due to the small number of fatalities each year, it is difficult to identify any trends.

Table 13-1

Alcohol Use Among Fatally Injured Drivers:
Age of Drivers
(Newfoundland, 1995)

AGE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
18-35	4	4 (100.0)	2 (50.0)	0 (0.0)	0 (0.0)	1 (25.0)	1 (25.0)
36-45	3	2 (66.7)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)
46-55	2	2 (100.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
> 55	2	2 (100.0)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	11	10 (90.9)	7 (70.0)	0 (0.0)	0 (0.0)	1 (10.0)	2 (20.0)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 13-2

Alcohol Use Among Fatally Injured Drivers:
Sex of Drivers
(Newfoundland, 1995)

SEX	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
MALE	10	9 (90.0)	6 (66.7)	0 (0.0)	0 (0.0)	1 (11.1)	2 (22.2)
FEMALE	1	1 (100.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	11	10 (90.9)	7 (70.0)	0 (0.0)	0 (0.0)	1 (10.0)	2 (20.0)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 13-3

Alcohol Use Among Fatally Injured Drivers:
Type of Vehicle Operated

VEHICLE TYPE	Number Of Drivers	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
AUTO	6	6 (100.0)	4 (66.7)	0 (0.0)	0 (0.0)	1 (16.7)	1 (16.7)
TRUCK-VAN	2	2 (100.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)
TRACTOR- TRAILER	3	2 (66.7)	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	11	10 (90.9)	7 (70.0)	0 (0.0)	0 (0.0)	1 (10.0)	2 (20.0)

Table 13-4

Alcohol Use Among Fatally Injured Drivers:
Type of Collision

COLLISION TYPE	Number Of Drivers*	Drivers Tested (% of total)	Drivers Grouped by BAC (mg%) (% of tested)				
			Zero	1-49	50-80	81-150	> 150
SINGLE- VEHICLE	6	5 (83.3)	2 (40.0)	0 (0.0)	0 (0.0)	1 (20.0)	2 (40.0)
MULTIPLE- VEHICLE	5	5 (100.0)	5 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
TOTAL	11	10 (90.9)	7 (70.0)	0 (0.0)	0 (0.0)	1 (10.0)	2 (20.0)

* Excludes operators of bicycles, snowmobiles, farm tractors, and other non-highway vehicles.

Table 13-5

Alcohol Use Among Fatally Injured Drivers:
Newfoundland, 1987 - 1995

YEAR	Number Of Drivers *	Drivers Tested	(% Total)	Zero	Drivers Grouped by BAC (mg%)				
					(% Tested)	1 - 80	(% Tested)	> 80	(% Tested)
1987	15	15	100.0	9	60.0	0	0.0	6	40.0
1988	20	13	65.0	4	30.8	2	15.4	7	53.9
1989	31	26	83.9	13	50.0	2	7.7	11	42.3
1990	24	20	83.3	9	45.0	5	25.0	6	30.0
1991	24	22	91.7	9	40.9	3	13.6	10	45.4
1992	18	13	72.2	5	38.5	2	15.4	6	46.2
1993	21	16	76.2	5	31.3	2	12.5	9	56.3
1994	12	10	83.3	5	50.0	0	0.0	5	50.0
1995	10	10	100.0	7	70.0	0	0.0	3	30.0

* dying in less than six hours.

14.0 NORTHWEST TERRITORIES:

Alcohol Use Among Fatally Injured Drivers

The Northwest Territories had only two fatally injured drivers in 1995. One driver was age 36-45 and the other was over age 55. Both drivers were male. One was driving an automobile and the other was driving a truck/van. Both of these drivers were involved in single-vehicle collisions.

They were both tested for the presence of alcohol and each driver had a zero BAC.

15.0 YUKON TERRITORY:

Alcohol Use Among Fatally Injured Drivers

The Yukon Territory had only four fatally injured drivers in 1995. Two drivers were in the age group 26-35 and there was one each in the 36-45 and 46-55 age groups. Three drivers were female and one was male. All four fatally injured drivers were operating an automobile. One driver was in a single-vehicle collision and three were in multiple-vehicle collisions.

All four fatally injured drivers in the Yukon Territory were tested for the presence of alcohol. Three drivers had a zero BAC and one had a BAC of 81 to 150 mg%.

APPENDIX A

THE FATALITY DATABASE PROJECT: OVERVIEW DESIGN AND CONDUCT OF THE PROJECT

INTRODUCTION

Aims of this Appendix are threefold:

- o to outline the history of the Fatality Database;
- o to discuss the type and sources of information required for the database:
and
- o to describe the design and conduct of the Fatality Database project.

HISTORY AND DEVELOPMENT OF THE FATALITY DATABASE

The Fatality Database project began as a series of small studies done by TIRF in cooperation with coroners and medical examiners during the 1960s and early 1970s (Simpson, Page-Valin, and Warren 1978). From 1973 to 1975, TIRF carried out two national surveys: (1) a survey of all chief coroners (or their equivalent); and (2) a survey of most laboratories that analyzed post-mortem specimens for alcohol and other drugs (Simpson and Heayn 1976). Findings from these surveys showed that reliable data on alcohol use among persons fatally injured in motor vehicle accidents could be obtained from most jurisdictions in Canada.

Based on this research, TIRF launched a major investigation of alcohol involvement in fatal traffic crashes in 1976. During that study, TIRF obtained historical data on *14,000 victims in seven provinces* (Simpson, Warren, and Page-Valin 1977). In subsequent years, other studies allowed the collection of historical data from some provinces (pre-1974) as well as more detailed information on drivers, pedestrians, and crashes in which they died (Simpson and Warren 1979; Simpson, Warren, Page-Valin, and Collard 1978; Warren, Simpson, Collard, and Page-Valin 1977). By 1978, the process of up-dating provincial files had become routine.

Under two consecutive *three-year* projects sponsored by Transport Canada and Health and Welfare Canada, TIRF extended the database to include information from 1977 through 1982 (e.g., Haas and Donelson 1984). Transport Canada funded TIRF's collection of 1983 data. Since then to the present, Transport Canada and the Canadian Council of Motor Transport Administrators (CCMTA) have jointly sponsored this project (Haas et al. 1985; Donelson et al. 1986; Walsh et al. 1987; Donelson et al. 1988; Simpson et al. 1990; Mayhew et al. 1991; Mayhew et al. 1992; Mayhew et al. 1993; Mayhew et al. 1994; Mayhew et al. 1995; Mayhew et al. 1996).

Beginning in 1986, concerted efforts were made to include those jurisdictions from which data had not been gathered. In large measure due to the willing cooperation of coroners, medical examiners, and officials of transportation agencies -- and to additional funds provided by sponsors of this project -- this effort was successful. Beginning in 1985 Nova Scotia was added to the database and, in 1986, Newfoundland was added. For calendar year 1987, data were obtained from Quebec, the Northwest Territories, and the Yukon Territory. Files of the *Fatality Database* are now complete from 1973 through 1995 for seven provinces: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, and Prince Edward Island. In all, data have been compiled on over 89,000 persons fatally injured in motor vehicle accidents since 1973.

Requirements for Information: Sources and Types of Data

To up-date the Fatality Database each year, TIRF accesses two primary sources of information: (1) police-reported data on fatal motor vehicle accidents and (2) files in offices of coroners and medical examiners. In general, *both* sources must be accessed to obtain complete data on victims, crashes, vehicles, and toxicology. **A victim's name is usually the only link between these sources of information.** Whenever possible, police-reported accident data are obtained in electronic form; in some jurisdictions, however, the needed data are coded directly from standard, "hard-copy" reports prepared by investigating officers.

For most jurisdictions, permission to access files in coroners' offices is obtained. Manitoba's Office of Chief Medical Examiner, however, now provides computer print-outs to TIRF for direct entry of required information into the database. In Quebec, the Office of Chief Coroner provides needed data on a microdiskette. Offices of the Chief Coroner for the Northwest Territories and the Yukon Territory provide information by telephone. The process of collecting data is described in greater detail in the next section of this Appendix.

Figure A-1 lists data required for each case included in the database; **why** the information on these selected variables is obtained is described below.

o Police-reported accident data

-- *police report number*: to link Fatality Database files to more comprehensive accident databases, both those maintained in the provinces and Transport Canada's Traffic Accident Information Databank (TRAID)

Figure A-1

Fatality Database: Requirements for Data

SOURCE	DATA
o Police-Reported Accident Data (electronic or hard-copy reports)	o report number o victim name o victim age, sex o position of victim in vehicle (if occupant) o crash date, time o type of collision o type of vehicle(s)
o Coroners' Reports (including toxicology)	o victim name o victim age, sex o time of death o type of specimen o chemical test results (alcohol, other drug concentrations)

-- *victim name*: (1) to identify all persons fatally injured in motor vehicle accidents reported by police and (2) to link data from police accident reports to coroners' data

-- *position of victim in vehicle* (if occupant): (1) to identify type of victim (driver or pedestrian) and (2) to link coroners' data directly to person-based files in accident databases **without the use of confidential identifiers** (that is, without use of victims' names)

o **Coroners' reports** (including toxicology)

-- *victim name*: (1) to identify persons fatally injured in motor vehicle accidents **not** contained in traffic-accident databases and (2) to link coroners' data with police-reported accident data

-- *time of death*: to estimate **elapsed time** from crash to death, which is required for the interpretation of results of chemical tests

-- *type of specimen*: to interpret results of chemical tests

As indicated above, to carry out the Fatality Database project, it is necessary to obtain personal information on victims of motor vehicle accidents. By agreement with cooperating agencies in each province, TIRF maintains **strict confidentiality** of all information obtained on victims of motor vehicle accidents. In this context, the current sponsors of the Fatality Database (Transport Canada, Canadian Council of Motor Transport Administrators [CCMTA]), require TIRF to submit annual files on magnetic tape or diskette so that data can be **linked** to TRAID and provincial accident databases. This requirement obviates the need for TIRF to re-code accident data, which is already computerized; greatly reduces costs; and allows more detailed analysis of motor vehicle accidents involving alcohol. It should be emphasized that the yearly data provided to sponsors does **not** contain names of victims, only the minimum number of unique "identifiers" needed to link corresponding records between databases (for example, police report number or its equivalent). During the many years TIRF has maintained the Fatality Database, **in no instance has the confidentiality of data been violated**. Moreover, no person or agency has raised legal issues that compromised this project.

DESIGN AND CONDUCT OF THE PROJECT

Because TIRF has managed the Fatality Database project and related studies for the past two decades, methods and procedures have become routine and increasingly efficient. As might be expected, wider use of computer technology has greatly facilitated many aspects of the data-gathering process. Nonetheless, occasional changes in provincial data systems demand that careful, *annual* attention be paid both to the design and to the conduct of this work. Foremost among considerations is maintaining **continuity of case files** for each jurisdiction and **comparability of data** over time and among jurisdictions. This section briefly describes how data for 1995 was collected for inclusion in the *Fatality Database*.

Design of the Project: Definitions of Eligible Cases

The Fatality Database consists of "case files" (or *records*), each representing a person fatally injured in a motor vehicle accident. Two sources of information provide data for most case files: (1) reports of investigations by coroners and medical examiners, along with supporting documentation; and (2) reports prepared by police officers who investigated fatal motor vehicle accidents, including electronic data based on those reports. To create case files for the *Fatality Database* requires that these two sources of information be linked, a task that is not always straightforward. For example, commonly used definitions of "motor vehicle fatality" and "reportable accident" can produce less than complete overlap of police and coroner cases within a province.

Moreover, definitions of "fatal motor vehicle accident" used by transportation agencies also vary among provinces. In order to *standardize* collection of data and to include as complete a set of cases as possible in the *Fatality Database*, a motor vehicle fatality has been broadly defined as **any person dying within 12 months as a result of an accident involving a motor vehicle**.

This definition of "motor vehicle fatality" is more inclusive than those used by provincial transportation agencies. For example, a motor vehicle accident officially defined as "fatal" by transportation agencies depends on where the accident occurred and the time elapsed between the occurrence of the accident and the death of an involved person. Typical illustrations of motor vehicle fatalities excluded by transportation agencies are deaths involving farm tractors or snowmobiles occurring on private property and cases in which victims live longer than three to six months after their involvement in traffic crashes on a public roadway. The rationale for including such cases in the database is twofold: (1) "impaired driving" as a problem behaviour extends beyond the public highways; and (2) deaths due to impaired driving can be accurately counted only if virtually all victims of motor vehicle accidents are identified -- even if they live up to a year after the accident itself.

Motor vehicle fatalities not reported by provincial transportation agencies can be identified in provincial coroner and medical examiner files by using "type of death" classifications. Thus, numbers of case files in the database will be somewhat larger than those reported by provincial transport agencies. At the same time, it should be noted that the definition of "motor vehicle fatality" is *less inclusive* than criteria employed by coroners and medical examiners to classify "sudden or unexpected deaths". For example, cases have been encountered in which persons dying more than 10 years after involvement in a motor vehicle accident were considered traffic fatalities; many of these persons had died as a result of medical conditions attributable to crash involvement years before. In addition, some cases investigated by coroners each year involve heart attacks that occur while persons operate motor vehicles. These fatalities are certainly related to the operation of motor vehicles; however, the Fatality Database has traditionally been restricted to cases involving deaths resulting *from* motor vehicle accidents. Thus, the Fatality Database will include fewer case files than those categorized by coroners and medical examiners as involving motor vehicles.

Conduct of the Project

The approach to creating 1995 case files was similar for each of the provinces included in the *Fatality Database*. There are four steps in the process:

- o **identification** of persons fatally injured in motor vehicle accidents;
- o **linkage** of sources of information on the victims and the motor vehicle accidents in which they were involved;
- o **collection** of data; and
- o **processing** of data.

Following past practice, cases were identified from police reports and police-reported data from provincial transportation agencies, thus ensuring the collection of data on virtually all reported "traffic fatalities". The general procedure was as follows. Names of victims and selected data reported by police were obtained and recorded using specially designed computer software. To complete capture of data for these cases, project staff accessed victim files maintained by coroners and medical examiners. Given characteristics and indexing of coroner/medical examiner files and police-reported accident data, the only means of initially linking these data sources continued to be the *name* of the victim. At provincial offices, staff members obtained toxicologic and other data, as well as complete data on other motor vehicle fatalities not identified through provincial transportation agencies.

The approach to collecting data differed somewhat from steps outlined above in some jurisdictions. Both Manitoba and Quebec were able to provide coroners' data directly to TIRF. And in Quebec, the Societe de l'assurance automobile du Quebec linked data from the coroner's files with their own police-reported data for 1995 -- 97% of the motor vehicle fatalities found on the coroner's files were successfully matched. In addition, staff of Alberta Transportation and Utilities coded police-reported data for our use in this project.

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